Draft Environmental Assessment (EA)

KALAOA WATER SYSTEM IMPROVEMENTS

North Kona District, Island Of Hawai‘i

Prepared For

Seascape Development LLC
P.O. Box 2808
Kailua-Kona, Hawai‘i 96745

Prepared By

Wilson Okamoto Corporation
Engineers & Planners
1907 South Beretania Street, Suite 400
Honolulu, Hawai‘i 96826

April 2008

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PREFACE

This Draft Environmental Assessment (EA) was prepared pursuant to Chapter 343, Hawai‘i Revised Statutes, and Title 11, Chapter 200, Hawai‘i Administrative Rules (HAR), Department of Health. Seascape Development, LLC proposes to acquire land and develop water source storage and transmission-system improvements to supplement the existing County of Hawaii, Department of Water Supply (DWS) Kalaoa Reservoir facility. Portions of the project are located on the State-owned but County-administered Kalaoa Reservoir facility site and within County easements, as well as State-owned roads, including Mamalahoa Highway and Old Government Road. The use of State land requires compliance with Chapter 343, HRS. Following construction of the proposed improvements, the land and improvements will be dedicated to DWS.

This EA will be processed as a Finding of No Significant Impact (FONSI) by the DWS, determining that the impacts of the proposed project will not warrant the preparation of an environmental impact statement pursuant to Chapter 343, Hawaii Revised Statutes (HRS).

SUMMARY

PROPOSING AGENCY:	Seascape Development, LLC
ACCEPTING AUTHORITY:	Department of Water Supply, County of Hawaii
PROJECT LOCATION:	Kalaoa, Kailua-Kona, Hawai‘i
TAX MAP KEY:	7-3-004: portion 11 and 17, and utility easements in 5 and Mamalahoa Highway and Old Government Road
AREA:	Approximately 1.1acres
EXISTING USE:	DWS Kalaoa well, reservoir and transmission route, Agriculture, Mamalahoa Highway, and Old Government Road
STATE LAND USE DESIGNATION:	Agriculture
ZONING DESIGNATION:	Agriculture (A-20a and A-1a) and road
PROPOSED ACTION:	Seascape Development, LLC proposes to acquire land and develop water source storage and transmission-system improvements to supplement the existing County of Hawaii, Department of Water Supply (DWS) Kalaoa Reservoir facility. Following construction of the proposed improvements, the land and improvements will be dedicated to DWS.
IMPACTS:	No significant long-term adverse impacts are anticipated to result from the proposed project. In the short-term, construction activities requiring periodic lane closures will inconvenience area residents and businesses. Construction activities will also have short-term air quality and noise impacts on the surrounding area.
ANTICIPATED DETERMINATION:	Finding of No Significant Impact (FONSI)

PERMITS AND APPROVALS THAT MAY BE REQUIRED:

National Pollutant Discharge Elimination System (NPDES) Notice of Intent for Storm Water Associated with Construction Activities;
Grading Permit; and
Building Permit

PARTIES CONSULTED DURING PRE-ASSESSMENT:

Federal
U.S. Army Engineer Division
U.S. Natural Resources Conservation Services

State
Department of Business, Economic Development and Tourism (DBEDT)
DBEDT, Office of Planning
DBEDT, Land Use Commission
Department of Health (DOH)
DOH, Office of Environmental Quality Control
Department of Land and Natural Resources (DLNR)
DLNR, Historic Preservation Division
DLNR, Engineering Division
Office of Hawaiian Affairs

County of Hawaii
Department of Parks and Recreation
Planning Department
Department of Public Works
Department of Water Supply

Organizations
Kona Palisades Estates Community Association

Surrounding Landowners
Mauna Ziona Congregational Church
Hawaii Conference of the United Church
Earl Wheaton
Hoona
Robert Freitas
Pine Tree Land Company

Akaiko G Akana Trust
Kelvin Anderson

PARTIES CONSULTED DURING DRAFT EA COMMENT PERIOD:

Federal
U.S. Army Engineer Division

State
Department of Business, Economic Development and Tourism (DBEDT)
Department of Health (DOH)
DOH, Office of Environmental Quality Control
Department of Land and Natural Resources (DLNR)
DLNR, Historic Preservation Division
Office of Hawaiian Affairs

County of Hawaii
Department of Parks and Recreation
Planning Department
Department of Public Works
Department of Water Supply

Organizations/Individuals
Kona Palisades Estates Community Association
Kailua-Kona Public Library
Ruby McDonald (OHA-Kailua-Kona)
Janice Yang (Association of Hawaiian Civic Clubs-Kona Branch)

1. INTRODUCTION

In October 2004, the County of Hawaii granted a request for rezoning of the 10-acre Lokahi Ka‘u Seascape Condominium property, which is locate approximately 2.75 miles west of the project site.. The applicant, Seascape Development, LLC by Westpro Holdings, LLC, its manager, proposes to develop approximately 108-units of affordable multi-family housing at that site. The development would include roadway access, parking, a wastewater treatment and disposal facility, and other amenities.

In granting the rezoning, the County of Hawaii imposed certain conditions. One of these requires the applicant, Seascape Development, LLC by Westpro Holdings, LLC, to develop water source, storage, and transmission-system improvements in conjunction with the proposed development. In consultation with the County of Hawaii Department of Water Supply (DWS) and other agencies, it was determined that providing improvements supplementing the existing DWS Kalaoa Reservoir facility would fulfill this condition.

The applicant proposes to provide these improvements in the form of a new 1.0 million gallon reservoir and associated water facility improvements near the existing DWS Kalaoa Reservoir facility and upgrading the associated transmission lines within County utility and road easements, the Old Government Road, and Mamalahoa Highway to Kaiminani Drive. When completed, the reservoir and transmission line improvements will be dedicated to DWS.

1.1 Project Location

The proposed project site is located in North Kona, mauka (east) of Mamalahoa Highway, opposite of Kona Palisades Estates (see Figure 1). The proposed one million gallon reservoir will occupy an approximately one-acre portion of an approximately 5.9 acre parcel identified as TMK 7-3-04:11 (see Figure 2). The privately owned parcel contains one residence which will remain. The reservoir is proposed to be located approximately 400 feet south of DWS’s existing Kalaoa Reservoir facility, at the same elevation of 1,820 feet. The existing reservoir occupies an approximately 20,440 square-foot parcel (TMK 7-3-04:17), which is owned by the State of Hawaii but administered by DWS pursuant to Executive Order No. 2795. Transmission lines will extend along the existing utility and road easement within TMK 7-3-04: 5 and 6, Old Government Road, and Mamalahoa Highway.

1.2 Project Need

The need for the water system improvements is associated with the development of the 108 units of affordable housing provided by the proposed Seascape Condominium and the future lots within the Lokahi Ka‘u Subdivision. The water system improvements will also help to meet existing demand in the service area.

The proposed Seascape Condominium development was granted rezoning by the County of Hawaii in October 2004, recognizing that it could supply needed

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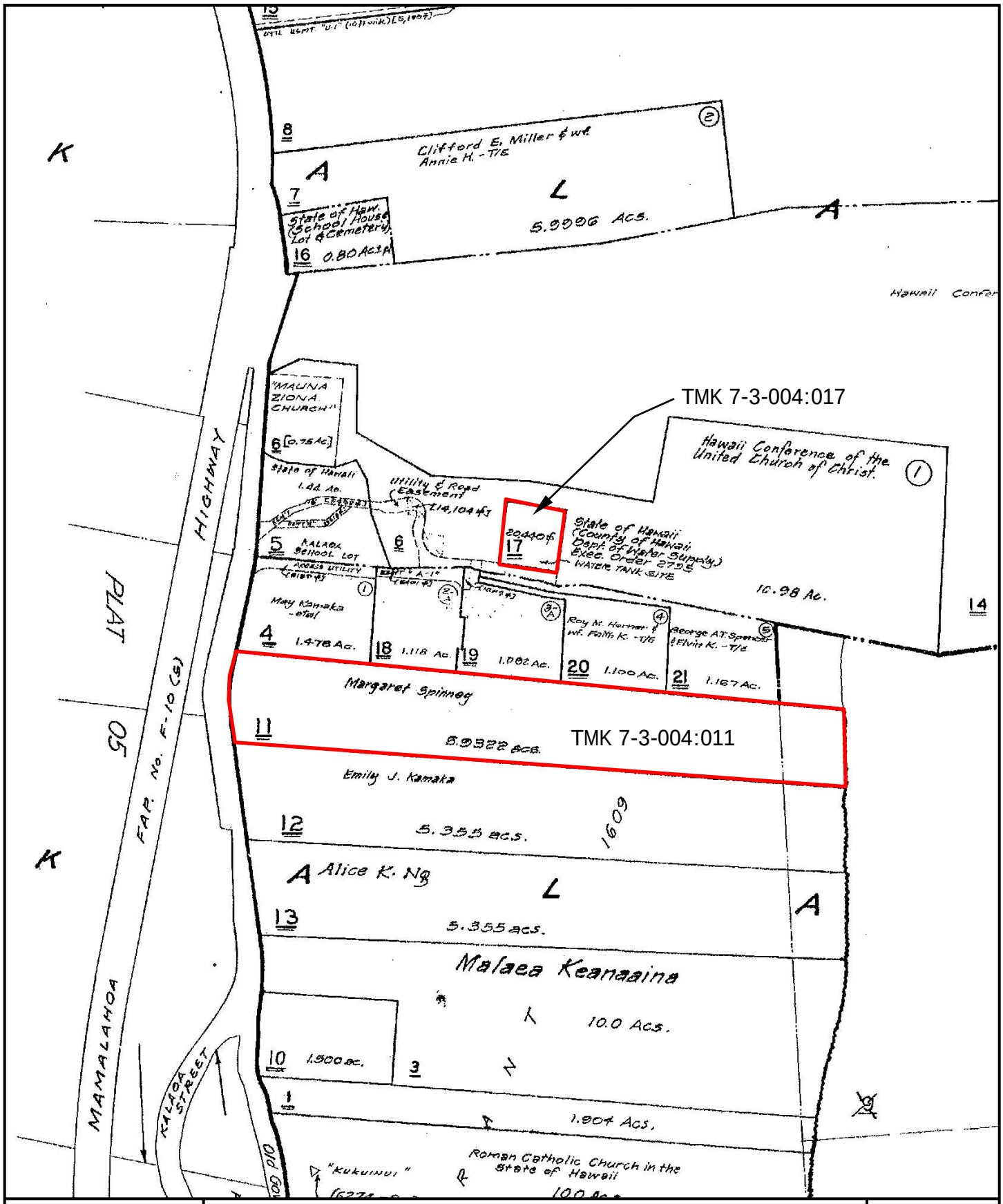
KALAOA WATER SYSTEM IMPROVEMENTS

LOCATION MAP

FIGURE
1



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KALAOA WATER SYSTEM IMPROVEMENTS

TAX MAP KEY 7-3-004

Figure **2**

affordable housing close to job centers in West Hawaii. As an incentive for providing affordable housing, the County attached a condition to the rezoning stating that if the applicant offered a portion of the units at prices meeting HUD's Affordable Sales Guidelines (affordable to residents earning no more that 140 percent of median income in the County of Hawaii) the County would waive "fair share" monetary contributions for roads, park, fire, police and solid waste disposal facilities. Nevertheless, a condition of rezoning for the Seascape Condominium requires the applicant to develop water source, storage, and transmission-system improvements. The intent of the condition is to increase the capacity of the water system to help meet the existing demand for fire protection and domestic needs in the service area as well as the Seascape Condominium. In consultation with the DWS and other agencies, it was determined that providing improvements supplementing the existing DWS Kalaoa Reservoir facility would fulfill this condition.

1.3 Existing and Surrounding Land Uses

The existing DWS Kalaoa Reservoir facility includes a 0.3 million gallon reinforced concrete reservoir, well, pumps, and chlorine system. The existing piping is located within private road/utility easements, TMK 7-3-04: 11 and 17, and public right of way in Old Government Road and Mamalahoa Highway. Existing uses in the vicinity of the project site include residential parcels, Mauna Ziona Congregational Church, Old Government Road, Mamalahoa Highway and Kona Palisades Estates residential subdivision makai of the Highway (see Figure 3).

The existing well at the Kalaoa Reservoir site is being reactivated by installing a replacement pump for the existing inoperable pump. The replacement pump will have a capacity of 700 gallons per minute (gpm), but will be operated at 500 gpm, the capacity of the pump being replaced, until the proposed reservoir and pipeline improvements have been completed. The replacement pump includes control systems, associated pipelines, and electrical hookups. An existing chlorination system will also be reactivated.

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KALAOA WATER SYSTEM IMPROVEMENTS

SURROUNDING USES

Figure
3

2. PROJECT DESCRIPTION

The proposed project includes the following major components (see Figure 4 and Photograph A and B):

- Construction of a new 1.0 million gallon reservoir supplementing the existing DWS Kalaoa Reservoir facility. The new reservoir will be located approximately 400 feet south of DWS's existing 300,000 gallon reservoir on an approximately one-acre site to be subdivided from TMK 7-3-04:11 and acquired by the Developer. Ownership of the site will subsequently be transferred to DWS.
- Upgrading approximately 800 feet of the existing 8-inch transmission line to a 12-inch diameter line that extends from the existing reservoir to Old Government Road.
- Connecting the existing and proposed reservoirs with nearly 2,000 feet of new twin, in- and out-flow, 12-inch diameter pipes. These pipes will be placed in existing utility easements, existing and new easements within Mamalahoa Highway and Old Government Road, as well easements to be acquired over private land.
- Upgrading the approximately 320 feet of the existing 12-inch transmission to a 16-inch diameter line that extends from the existing 8-inch line connection in Mamalahoa Highway to the intersection of Kaiminani Drive.
- Two alternative pipeline routes for the new 12-inch transmission line crossing Mamalahoa Highway are being considered. The alternatives include:
    1. Maintaining the existing pipeline route, crossing the steep embankment between Mamalahoa Highway and Old Government Road (approximately 130 feet in length); or
    2. Following Old Government Road to the northern intersection of Mamalahoa Highway, and crossing the highway; and, replacing the existing 12-inch diameter pipeline with a 16-inch pipeline (approximately 425 feet) to the existing connection with the 12-inch line from the reservoir.
- Increasing the pumping rate at the Kalaoa Reservoir well from 500 gpm to 700 gpm

Following construction, the new reservoir, associated facility improvements and transmission line will be dedicated to DWS.

2.1 Project Schedule and Cost

The construction work for the entire proposed project is anticipated to span approximately six to nine months, with an approximate project finish date of December 2008. The total project cost is estimated at $6 million.

2.2 Required Permits and Approvals

- NPDES Notice of Intent for Storm Water Associated with Construction Activities
- Grading Permit
- Building Permit

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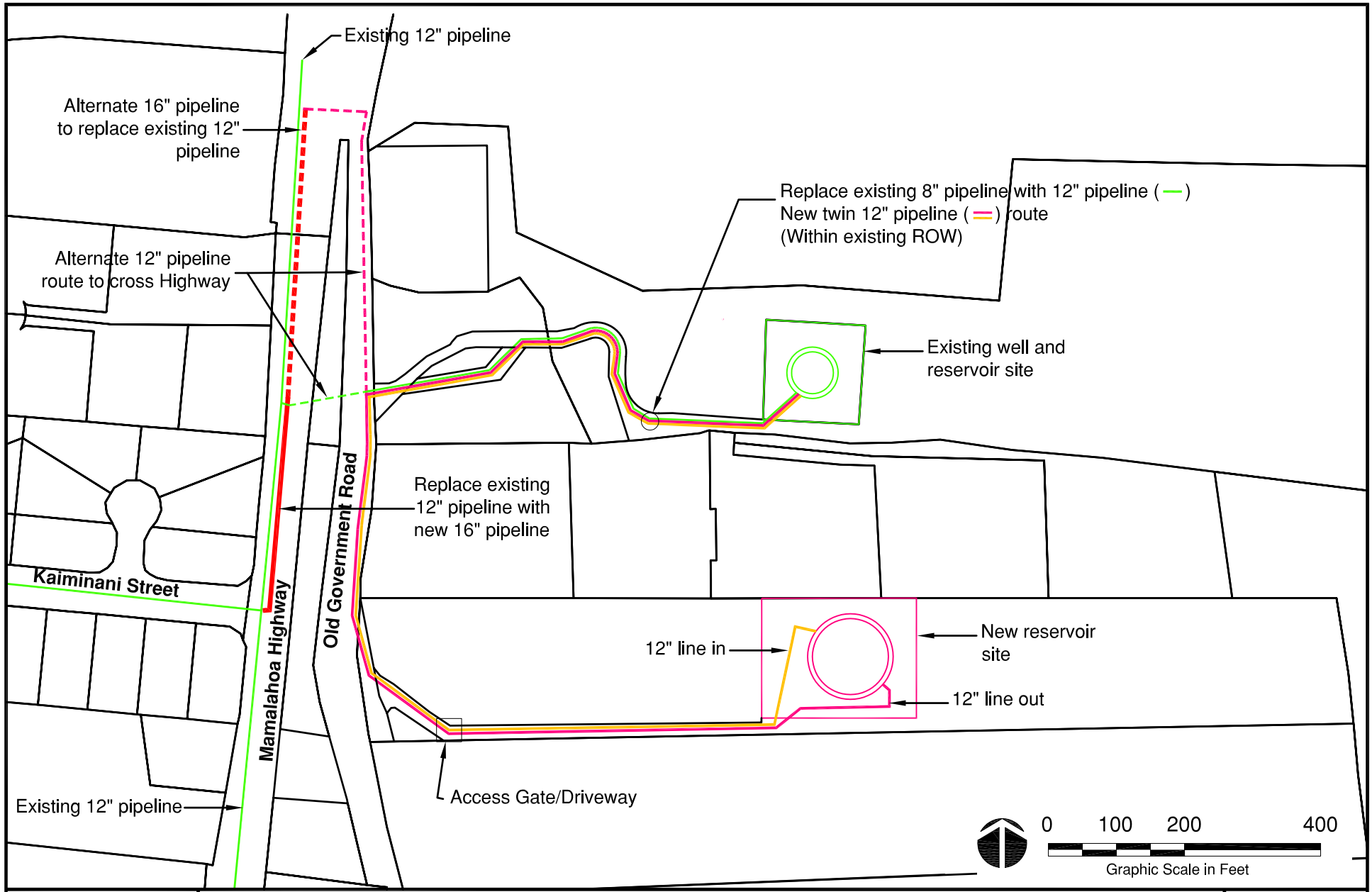

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KALAOA WATER SYSTEM IMPROVEMENT

EXISTING AND ALTERNATE PIPELINE ROUTES

FIGURE 4

Proposed reservoir site maintains the same elevation as existing reservoir (behind structure)

Mauka of proposed reservoir site

Proposed reservoir site

Makai of proposed reservoir site

Direction from Proposed Reservoir Site

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KALAOA WATER SYSTEM IMPROVEMENTS

PROPOSED PROJECT SITE - RESERVOIR

Photographs

A

Kaiminani Street heading makai

Top: Mamalahoa Highway heading north

Bottom: Mamalahoa Highway heading south towards Kaiminani Street

Old Government Road facing south

WILSON OKAMOTO CORPORATION ENGINEERS • PLANNERS	**KALAOA WATER SYSTEM IMPROVEMENTS**	Photographs
	PROPOSED PROJECT SITE – PIPELINE ROUTES	**B**

3. DESCRIPTION OF THE EXISTING ENVIRONMENT, IMPACTS, AND MITIGATION MEASURES

The following is a description of the existing environment, assessment of potential impacts and proposed measures to mitigate potential adverse impacts resulting from the proposed project.

3.1 Climate

The project area is located on the western side of Hawaii Island where the climate is typically semi-tropical with uniform temperatures, moderate humidity and two identifiable seasons. The "summer" season, between May and October, is generally warmer and drier. The "winter" season, between October and April, is cooler and wetter. The western, or leeward side of Hawaii Island is sheltered from the northeasterly trade winds that prevail throughout the state for most of the year. Thus, rainfall in the region is relatively low, averaging about 30 inches annually.

3.2 Geology and Topography

Hawaii Island was formed by lava from five volcanoes: Kohala, Mauna Kea, Mauna Loa, Hualalai, and Kilauea. Of these five volcanoes, only three (Hualalai, Mauna Loa, and Kilauea) remain active within historical times (late 1700's). In recent years, only Mauna Loa and Kilauea have erupted.

Kona is situated along the western slopes of both Hualalai and Mauna Loa volcanoes, and is geologically quite young, being covered by recent prehistoric and historic lavas. Kona has not experienced extensive erosion and lacks streams or well-defined drainage channels due to the climate and young geology of the region. The project area is located on the western slope of Hualalai Volcano. Much older than Kilauea or Mauna Loa, Hualalai last erupted from 1800 to1801. These flows reached the ocean near Kiholo Bay and at Keahole Point.

The existing Kalaoa Reservoir site and proposed reservoir site ranges from approximately 1,660 to 1,820 feet in elevation (see Figure 5). The topography slopes generally to the west, with a steep embankment immediately mauka of Mamalahoa Highway between Old Government Road.

Impacts and Mitigation Measures

The proposed project will not alter the geology or overall topography of the respective project sites. Cut and fill grading will be required to prepare an approximate one-acre level area for the proposed reservoir at the Kalaoa Reservoir site. The transmission line improvements will include trenching between both reservoirs approximately 2,000 feet to install new lines and replace existing pipelines. The trenches will be filled to restore the existing grade and topography.

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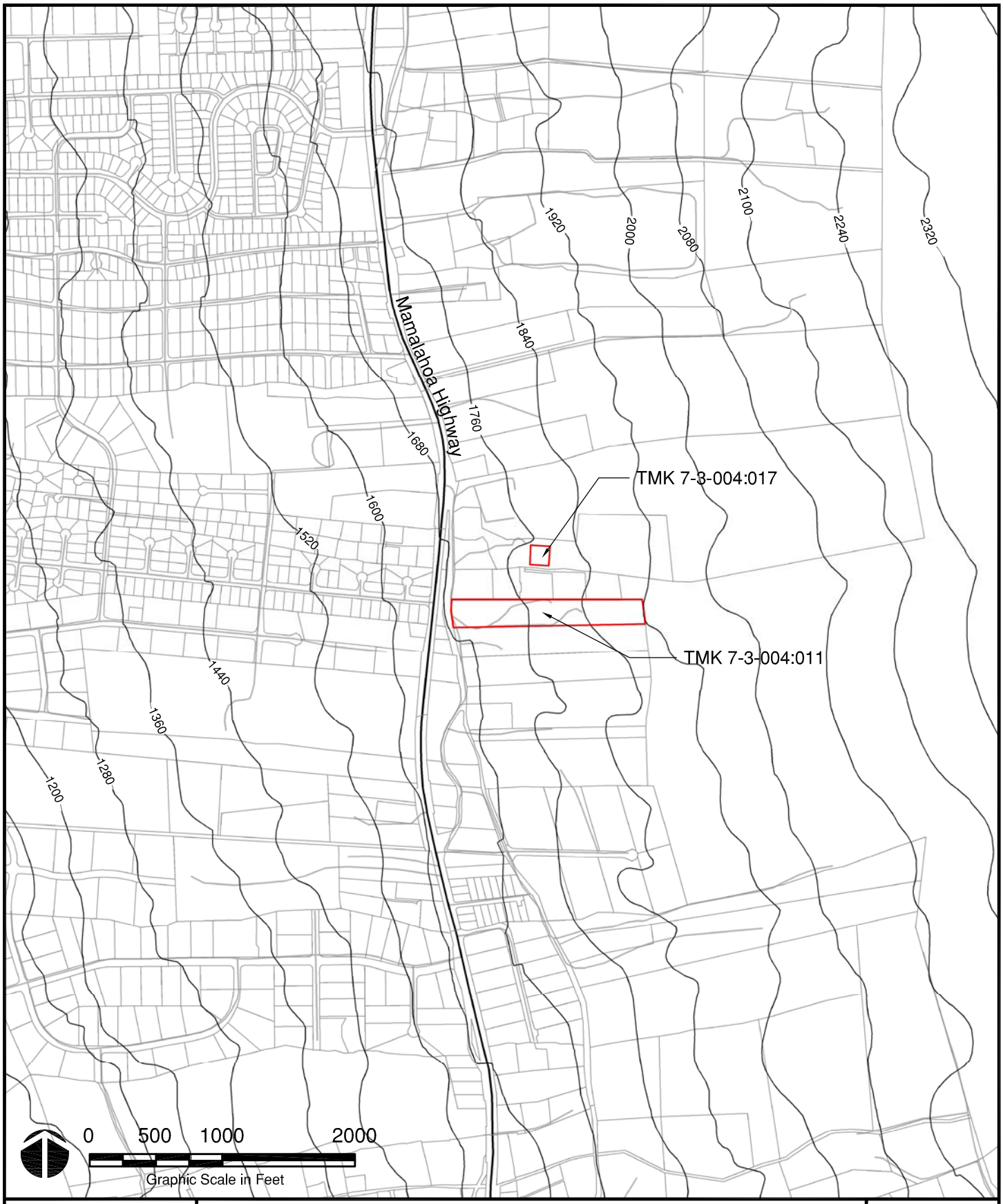

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TOPOGRAPHIC MAP

FIGURE
5

3.3 Ground Water Hydrology

Water resources in the Kona area are associated with groundwater reserves. The North and South Kona districts overlie the Hualalai and Southwest Mauna Loa Aquifers. The project site is situated over the Keauhou Aquifer System of the Hualalai Aquifer Sector. This Sector has a sustainable yield of approximately 56 million gallons per day (mgd), and the Keauhou Aquifer System has a sustainable yield of approximately 38 mgd (CWRM, 1995). None of the project sites is located within in an area designated by the U.S. Environmental Protection Agency as being supported by a sole source aquifer.

Impacts and Mitigation Measures

No significant impacts to ground water underlying the project site is anticipated. The previous pump operated at 300 gallons per minute. If a pump test is performed, the replacement pump could potentially operate at 700 gpm, but will be operated at 500 gpm, the allowable limit and the capacity of the pump being replaced. Reservoir construction and the replacement of pipelines are not likely to introduce, nor release any materials that could adversely affect ground water. Construction earthwork at the project site will not extend to the depth of the water table. Construction debris will be removed and appropriately disposed of to prevent their leaching into receiving bodies of water.

3.4 Soils

According to the U.S. Natural Resources Conservation Service (NRCS), the soil type in the project area is Kaimu (rKED) and rPYD (see Figure 6):

Kaimu extremely stony peat, 6 to 20 percent slopes (rKED) – This series covers the majority of the project site and consists of well-drained, thin organic soils over Aa lava. This soil is at low elevations on Mauna Loa. They receive from 40 to 60 inches of rainfall annually. Permeability is rapid, runoff is slow, and the erosion hazard is slight. In a representative profile the surface layer is very dark brown, extremely stony peat about three inches thick. It is underlain by fragmental Aa lava. This soil is neutral in reaction. This soil is not suitable for cultivation. Most of it is in native woodland. Small areas are used for pasture, macadamia nuts, papaya, and citrus fruits.

Punaluu extremely rocky peat, 6 to 20 percent slope (rPYD) – This series extends in the alternative pipeline project area and consists of well-drained, thin organic soils over pahoehoe lava bedrock. These soils are gently sloping to moderately steep. They receive 60 to 90 inches of rainfall annually. Rock outcrops occupy 40 to 50 percent of the surface. The peat is rapidly permeable and the pahoehoe

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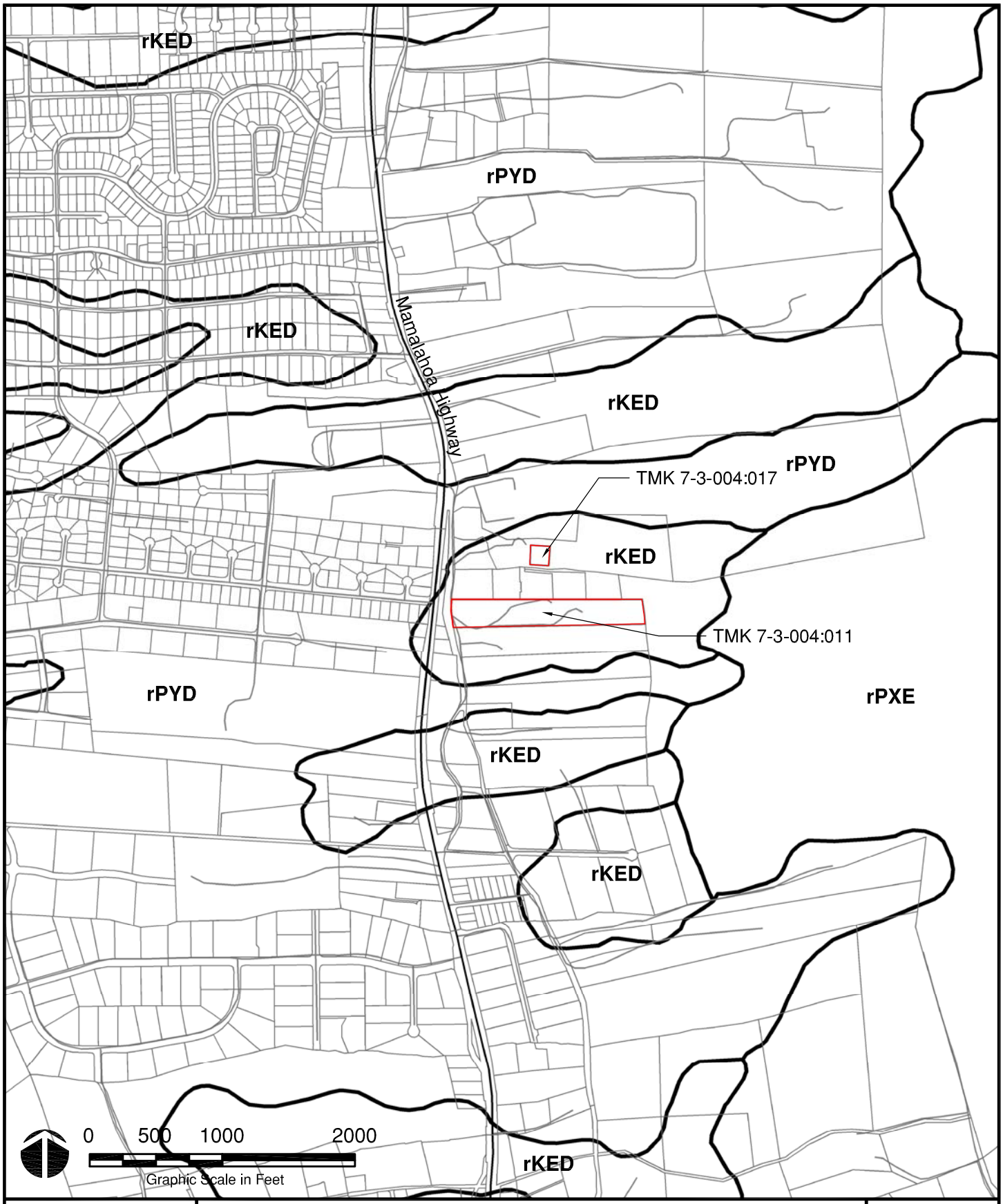

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KALAOA WATER SYSTEM IMPROVEMENTS

SOILS MAP

FIGURE
6

> lava is very slowly permeable, although water moves rapidly through the cracks. Runoff is slow, and erosion hazard is slight. Roots are matted over the pahoehoe lava. The soil is good for pasture.

The 1965 *Detailed Land Classification – Island of Hawaii* published by the University of Hawaii Land Study Bureau (LSB), evaluates the productive quality and capacity for selected crops, as well as the overall suitability for agricultural use on the Island of Hawaii. A five-class productivity rating system was established with “A” representing the highest productivity and “E” the lowest. The project site was rated within the "D” and “E" which indicates very poor productivity. The proposed reservoir and majority of transmission lines and twin lines are within category “D”. The alternate pipeline located on Old Government Road and crossing through the northern intersection of Old Government Road and Mamalahoa Highway is located in category “E”.

The *Agricultural Lands of Importance in the State of Hawaii (ALISH) Map,* prepared by the State Department of Agriculture, classifies lands into three categories: 1) prime agricultural land, 2) unique agricultural land, and 3) other important agricultural land. The project site is classified “Other Important Agricultural Land”. The alternate pipeline located on Old Government Road and crossing through the northern intersection of Kalaoa and Mamalahoa Highway is not located in any designated ALISH (see Figure 7).

Impacts and Mitigation Measures

No significant short-term impacts on soils are anticipated as a result of construction at the project site. Storm runoff from the project site during site preparation will be controlled in compliance with the Hawaii County’s “Storm Drainage Standard,” October 1970. All grading work will comply with Chapter 10 of the Hawaii County Code. Grading operations will also comply with the Erosion and Sedimentation Control Standards and Guidelines of the County of Hawaii Department of Public Works, as well as Hawaii Administrative Rules (HAR), Title 11, Chapters 54 and 55 regarding Water Quality Standards and Water Pollution Control, respectively. The area of soil disturbance at the project site, which includes the reservoir site and transmission lines will exceed one acre. Therefore, pursuant to HAR Chapter 11-55, a National Pollutant Discharge Elimination System (NPDES) permit for Construction Storm Water Activities will be required from the State of Hawaii Department of Health (DOH) before construction begins at the proposed project site. In conjunction with the NPDES permit, a Best Management Practices (BMP) Plan will be prepared for construction activities within the project site. The BMP may include typical mitigation measures such as using silt fences, protecting inlets and catch basins, appropriately stockpiling materials on-

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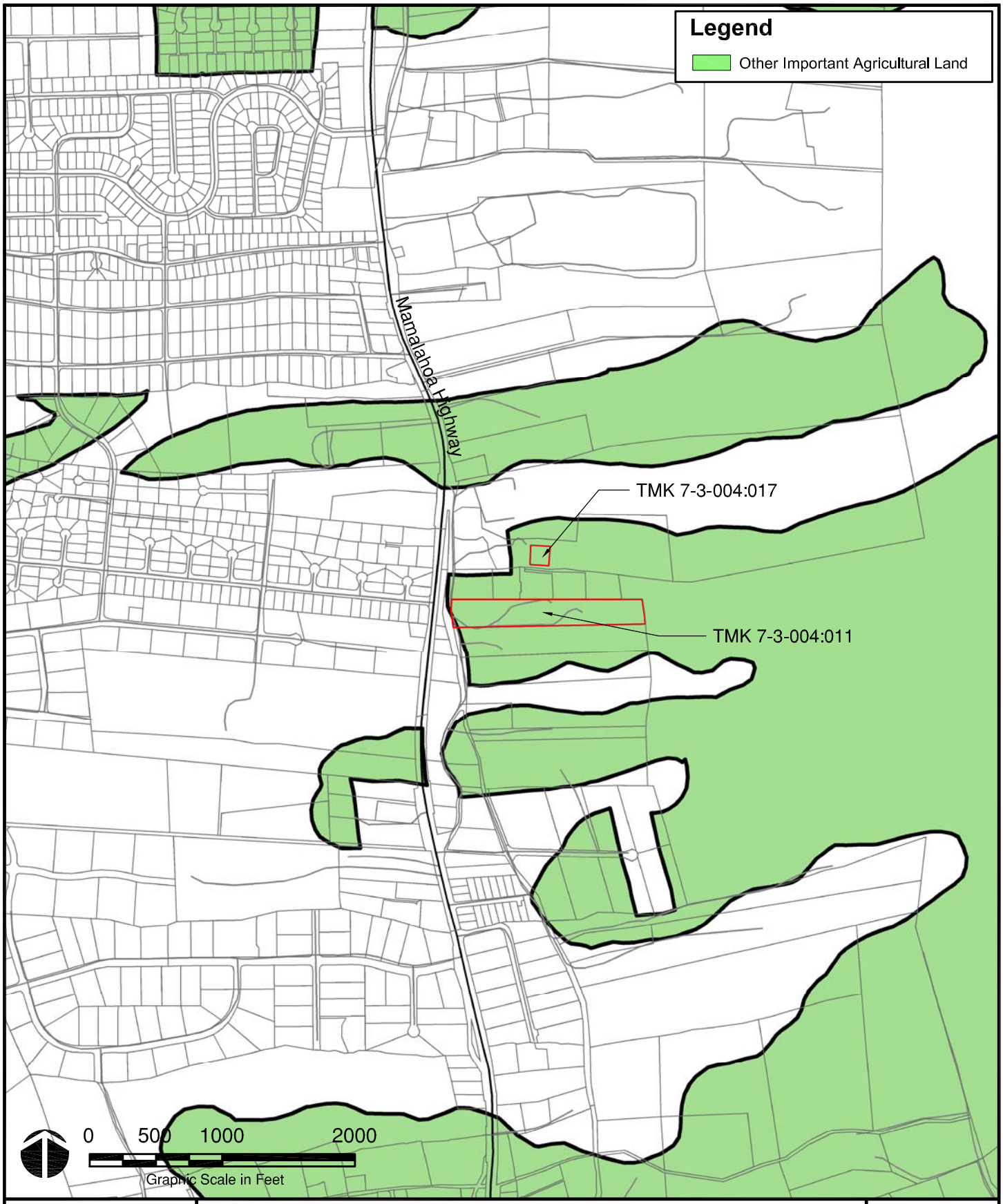

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KALAOA WATER SYSTEM IMPROVEMENTS

ALISH MAP

FIGURE 7

site to prevent runoff and building over, and establishing landscaping as early as possible on disturbed soils to minimize length of exposure.

No significant long-term impacts on soils are anticipated in or near the project site. To minimize erosion and sedimentation, areas disturbed during construction will be built over, paved, or landscaped as soon as possible.

With the use of appropriate erosion controls, no significant cumulative short-term or long-term impacts are anticipated as a result of the proposed development.

3.5 Coastal Water Quality

There are no surface streams within or near the project site. The nearest coastal water body is the Pacific Ocean, located approximately 4.9 miles west of the project site. The coastal waters in this area are designated Class AA by the DOH. As stated in HAR, 11-54-03(c)(1), "it is the objective of class AA waters that these waters remain in their natural pristine state as nearly as possible, with an absolute minimum of pollution or alteration of water quality from any human-caused source or actions. To the extent practicable, the wilderness character of these areas shall be protected". No part of the project site is located within or adjacent to a wetland identified by or delineated on maps issued by the U.S. Department of Interior, Fish and Wildlife Service.

Impacts and Mitigation Measures

No significant short-term impacts on coastal or surface waters are anticipated as a result of construction activities for the proposed project. Storm runoff from the project site during site preparation will be controlled in compliance with the Hawaii County's "Storm Drainage Standard," October 1970. All grading work will comply with Chapter 10 of the Hawaii County Code. Grading operations will also comply with the Erosion and Sedimentation Control Standards and Guidelines of the County of Hawaii Department of Public Works, as well as Chapters 11-54 and 11-55, HAR, regarding Water Quality Standards and Water Pollution Control, respectively. The area of soil disturbance at the project site, which includes the proposed reservoir and improved transmission lines will exceed one acre. Therefore, pursuant to HAR Chapter 11-55, a National Pollutant Discharge Elimination System (NPDES) Notice of Intent (NOI) for Construction Storm Water Activities will be required from the State of Hawaii Department of Health (DOH) before construction begins at the proposed project site. In conjunction with the NPDES NOI, a Best Management Practices (BMP) Plan will be prepared for construction activities within the project site. The BMP may include typical mitigation measures such as using silt fences, protecting inlets and catch basins, appropriately stockpiling materials on-site to

prevent runoff and building over, and establishing landscaping as early as possible on disturbed soils to minimize length of exposure.

No significant long-term impacts on coastal or surface waters are anticipated as a result of construction activities for the proposed project. Areas disturbed during construction will be built over, paved, or landscaped to minimize erosion and sedimentation.

No significant cumulative short-term or long-term impacts on coastal waters are anticipated as a result of the proposed Kalaoa Reservoir improvements at the project site. With appropriate erosion-control measures applied during and following construction, the potential for significant cumulative impacts will be minimized.

3.6 Flood Hazard

Based on the Flood Insurance Rate Map prepared by the Federal Emergency Management Agency, the project site is designated Zone X, “areas determined to be outside of the 500-year flood plain.

Impacts and Mitigation Measures

The project site is outside the 500-year flood plain; no impacts related to flooding are anticipated.

3.7 Volcanic Hazard

The U.S. Geological Survey has prepared maps to determine the history and severity of volcanic hazards on the island of Hawaii. The island is divided into nine zones based on past coverage of lava flows, Zone 1 being the most hazardous and Zone 9 being the least hazardous. The Kona districts are identified as having lava flow zones 1 through 4. According to the U.S. Geological Survey (USGS), the project site is located in Volcanic Hazard Zone 4. The project site is located on the slopes of Hualalai, an active volcano in the post shield stage whose most recent eruptions occurred 200 years ago. Hualalai is a potentially dangerous volcano that is likely to erupt in the next hundred years (Juvik and Juvik, 1998). Hazard zones from lava flows are primarily based on the location and frequency of both historic and prehistoric eruptions. Hualalai is in a single zone because its slopes are steep, and flows could cover the distance between potential vent sites and the coast (Juvik and Juvik, 1998). The hazard is essentially equal anywhere on the volcano.

Impacts and Mitigation Measures

The proposed project site is located close to previously developed areas subject to the same level of risk associated with volcanic hazards. Thus, the proposed project will marginally increase the amount of development in the vicinity that is exposed to those volcanic hazards.

3.8 Seismic Hazard

The entire island of Hawai‘i is in Earthquake Zone 4 of the Uniform Building Code, which establishes structural design standards for earthquake resistance for certain types of buildings. This zone is prone to major damage from earthquake activity.

Impacts and Mitigation Measures

To protect structures subject to seismic activity, the County of Hawaii in 1991 adopted the International Conference of Building Officials' (ICBO) Uniform Building Code (UBC) construction standards for Seismic Zone 4, the highest standards for seismic protection. The proposed project will be constructed to those standards, as applicable.

3.9 Flora

Palmer & Associates Consulting conducted a botanical survey of the study parcels (TMK 7-3-4:11 and 17) in December 2006. The survey also included a visual survey of the parcels. The survey is included in Appendix A and is summarized below.

The proposed reservoir parcel (TMK 7-3-4:11) is highly disturbed and occupied by mostly alien, introduced plants. Much of the site is dominated by introduced elephant grass (*Pennisetum purpureum*), with scattered introduced silk-oak (*Grevillea robusta*) trees. A few remnant native ohia also occur.

No endangered or rare plants were found in either of the two parcels and neither parcel contains unique or sensitive habitats. Both parcels are highly modified from their pristine condition, with the original native forest vegetation having been removed many years ago. Mauka of the two parcels and adjacent to the existing reservoir native forest occurs, but none of the proposed project actions will significantly affect the native forest.

No federally protected, threatened or endangered species of plants or animals are known to inhabit the proposed project site. According to the maps contained in the Critical Habitat Updates available at the U.S. Fish & Wildlife Service's (USFWS) website, the proposed project site is not located within USFWS-proposed critical habitats for 47 plant species on the Island of Hawaii.

Impacts and Mitigation Measures

The proposed project will have no negative effects on botanical resources in the native forest, native habitats or rare and endangered plants. No listed, candidate or proposed endangered plant species are likely to be found on the proposed project site; therefore, no significant adverse effects on such species or their habitats are anticipated as a result of the proposed project.

3.10 Fauna

Rana Productions, Ltd. conducted a faunal survey of the study parcels (TMK 7-3-4:11 and 17) in January 2007. The survey is included in Appendix B and is summarized below.

A total of 233 individual birds of 17 different species, representing ten separate families were recorded during station counts. All species detected are considered to be alien to the Hawaiian Islands.

A total of five mammalian species were detected during the course of this survey, several dogs were either seen and, or heard in various yards associated with the houses present within the project area. Three small Indian mongooses (*Herpestes a. auropunctatus*) were seen in various locations on the site, as were two cats (*Felis catus*), and one pig (*Sus s. scrofa*). The Hawaiian hoary bat was not detected during the survey. All of the alien mammalian species recorded during this survey are deleterious to avian and floristic components of the remaining native ecosystems present on the Island.

Although not detected during the course of the study, it is likely that the endangered Hawaiian Hawks (*Buteo solitarius*) forage over the subject property occasionally, as they are relatively distributed in the Kalaoa and Kaloko mauka areas (Klavitter 2000, David 2007). They are regularly seen foraging in the general project area.

Although not detected during this survey, it is possible that small numbers of the endangered endemic Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened Newell's Shearwater (*Puffinus auricularis newelli*) over-fly the project area between the months of May and November (Banko 1980a, 1980b, Day et al. 2003a, Harrison 1990).

Impacts and Mitigation Measures

No listed, candidate or proposed endangered animal species are likely to be found on the proposed project site; therefore, no significant adverse effects on such species or their habitats are anticipated as a result of the proposed project.

The proposed project located on the two study parcels is not expected to result in deleterious impacts to any avian or mammalian species currently listed as threatened, endangered or proposed for listing under either the Federal, or State of Hawai'i endangered species programs. Furthermore, the development of the site is not expected to have a significant deleterious impact on native faunal resources found within the North Kona District.

To reduce the potential for interactions between nocturnally flying Hawaiian Petrels and Newell's Shearwaters with external lights and man-made

structures, it is recommended that any external service or safety lighting that may be required in conjunction with the reservoir or pump site be shielded (Reed et al. 1985, Telfer et al. 1987). In the unlikely event that a Hawaiian Hawk nest is found during construction, work in the immediate vicinity of the nest should be halted immediately and the U.S. Fish and Wildlife Service should be contacted, and consulted with before work is resumed in close proximity to the nest tree.

3.11 Noise

Ambient noise levels in the project area are generally low. Existing noise levels in the typically upland agricultural setting is primarily affected by residential properties, churches, and traffic along Mamalahoa Highway. The nearby Mauna Ziona Congregational Church and residential properties are noise sensitive uses in the vicinity of the project site.

Impacts and Mitigation Measures

In the short term, noise from the proposed project-related construction activities is unavoidable. Operation of construction equipment and vehicles for the proposed reservoir grading and construction will raise ambient noise levels in the project vicinity. Adverse impacts will be mitigated by performing work only during daytime hours. Noise during construction and normal hours of operation will follow the guidelines as stipulated in Chapter 11-46, HAR, Community Noise Control Regulations.

Following the completion of the project, ambient noise levels in the vicinity of the project site may increase slightly due to the reactivation of water pumping and machinery systems related to the use of the proposed reservoir. The adjacent residential and religious uses may be affected by an increase of short-term noise from reservoir and pipeline construction and experience a marginal increase in the long-term created by the reservoir pump and generator systems.

3.12 Air Quality

According to the State Department of Health's (DOH) 2003 Annual Summary Hawaii Air Quality Data, "Air quality in the State of Hawai'i continues to be one of the best in the nation and criteria pollutant levels remain well below state and federal ambient air quality standards". The report contains a five-year trend based on annual averages for particulates, sulfur dioxide and nitrogen dioxide and annual averages of daily maximum 1-hour values recorded for ozone and carbon monoxide from 1999 to 2003. During this period, the averages were well below federal standards and the more stringent State standards for carbon monoxide and nitrogen dioxide.

The DOH maintains a special purpose air quality monitoring station for "vog" in Kealakekua. Located on the grounds of Konawaena High School, the station

samples sulfur dioxide (SO_2). According to DOH's 2003 Annual Summary, levels measured at this station were well below State and federal standards.

Air quality in the vicinity of the project site may be affected by vehicle emissions from Mamalahoa Highway, Kaiminani Drive and Old Government Road. Agricultural activities, such as coffee farming, in the area may occasionally generate dust. The reservoir water is treated using a chlorine system, when operating properly, the chlorine system is odorless.

Impacts and Mitigation Measures

The proposed project will have short-term construction-related impacts on air quality, including the generation of dust and emissions from construction vehicles, equipment and commuting construction workers. The construction contractor is responsible for complying with Chapter 11-60.1, HAR, regarding air pollution control, and in particular, Chapter 11-60.1-32 and 11-60.1-33, fugitive dust and the prohibition of visible dust emissions at property boundaries.

Mitigation measures to address short-term impacts include:

- Minimizing the movement of construction vehicles during peak traffic periods to avoid traffic congestion and associated increase in vehicular emissions; and

- Controlling the generation of fugitive dust through frequent watering of unpaved vehicular access routes and areas of disturbed soil within the project site and building over or landscaping disturbed soils as soon as possible to minimize the time of exposure.

In the long-term, the proposed project will have negligible air quality impact, as it will expand an existing use that has minimal air quality impacts.

3.13 Views

The project site, which includes the proposed reservoir, transmission line improvements and alternate pipeline routes lies at an elevation ranging from 1,660 to 1,820. Upland Forest is located mauka of the proposed reservoir site, high grasses and forest terrain are located to south, and a residential property is located between the existing and proposed reservoirs. Makai views from the proposed reservoir site include the ocean, coastline and area surrounding Keahole Point and the Natural Energy Laboratory of Hawaii Authority (NELHA) (see Photographs C).

Impacts and Mitigation Measures

The proposed project will impact the side views of the parcel adjacent and between to both reservoirs. However, the most scenic views facing makai

will not be affected as the reservoir will be constructed behind, or at a lower elevation than the surrounding developments (see Figure 3).

3.14 Archaeological and Historic Resources

Rechtman Consulting LLC submitted a request for determination of "no historic properties affected" associated with the placement of the proposed reservoir to the Department of Land and Natural Resources, State Historic Preservation Division (SHPD). Findings from previous studies were presented in the letter. The determination by SHPD is included in Appendix C and is summarized below.

SHPD concluded that no historic properties will be affected by the proposed project because intensive cultivation has altered the land and, as noted in the request for determination letter, no historic properties are present at the project location.

Impacts and Mitigation Measures

No adverse impacts are anticipated. If any archaeological resources are uncovered, including human skeletal remains, work in the immediate vicinity will cease and the Department of Land and Natural Resources, Historic Preservation Division will be notified immediately.

3.15 Socio-Economic Characteristics

The proposed project site is within Census Tract (CT) 215.02. In 2000, the area had a population of 3,688 (US Census, 2000) (see Table 1). In comparison to the County as a whole, the following characterize CT 215.02:

- By age group, there is a higher proportion of people 20 to 64 years old, but a lower proportion of those 65 and older
- By racial mix, there are proportionately more Whites and fewer Asians
- Households have equally proportionate married-couple families and more non-family householders 65 years and older
- Homeownership is proportionately lower, and there are proportionately more vacant units; and
- Economic indicators show a higher percentage of those 16 and over in the work force, greater family and per capita income and lower proportion of families and individuals below the poverty level.

Impacts and Mitigation Measures

In the short-term, construction expenditures will confer some positive benefits to the local economy. This would include creation of some construction and construction support jobs, and generation of State and County Tax revenue, associated with construction expenditures.

Table 1: Demographic Characteristics				
Subject	**Census Tract 215.02**		**County of Hawaii**	
	Number	**Percent**	**Number**	**Percent**
Total Population	3,688	100	148,677	100
AGE				
Under 5 Years	183	5	9,130	6
5 to 19 years	751	20	33,690	23
20 to 64 years	2,329	63	85,738	58
65 years and over	425	12	20,119	13
Median age (years)	40.9	--	38.6	--
RACE				
White	1,806	49	46,904	32
Asian	560	15	39,702	27
Native Haw'n, other Pacific Islander	416	11	16,724	11
Two or more races	853	23	42,288	28
Other	53	2	3,059	2
HOUSEHOLD (BY TYPE)				
Total Households	**1,419**	**100**	**52,985**	**100**
Family households (families)	920	65	36,903	70
children under 18 years	413	29	17,072	32
Married-couple family	726	51	26,828	51
Children under 18 years	304	21	11,302	21
Female householder, no husband present	123	9	7,000	13
Children under 18 years	64	5	4,095	8
Non-family households	499	35	16,082	30
Average household size	2.6	--	2.75	--
HOUSING OCCUPANCY AND TENURE				
Total Housing Units	**1,551**	**100**	**62,674**	**100**
Occupied units	1,419	91	52,985	85
By owner	781	50	34,175	55
By renter	638	41	18,810	30
Vacant units	132	9	9,689	15
Homeownership rate	--	55.0	--	64.5
SOCIAL CHARACTERISTICS				
Population 25 years and over	2,610	100	97,708	100
High school graduate or higher	735	28	30,653	31
Bachelor's degree or higher	738	28	21,595	22
ECONOMIC CHARACTERISTICS				
In labor force (pop. 16 & over)	2,073	70	70,791	62
Median household income (dollars)	46,100	--	39,805	--
Median family income (dollars)	60,724	--	46,480	--
Per capita income (dollars)	24,634	--	18,791	--
Source: Census 2000, Summary File 1, 100-Percent Data				

In the long-term, the proposed project will provide needed improvements in the water system serving the area, to better serve domestic and fire protection needs.

3.16 Public Services and Facilities

3.16.1 Police Protection

The project site is located within the Hawaii County Police Department's Kona District. The Kealakehe Police Station is located in Kealakehe, approximately five miles from the project site. Substations are located in Captain Cook, Kailua-Kona (Kailua Village), and Keauhou.

Impacts and Mitigation Measures

Construction and operation of the Kalaoa Reservoir facility improvements is not anticipated to increase demand for police services.

3.16.2 Fire Protection

A 24-hour fire facility is located in Kailua-Kona with fire and emergency services and rescue capabilities. The Kailua-Kona Fire Station is approximately five miles from the project site. Fire stations are also located in Keauhou and Captain Cook. A volunteer Fire Station is located in Kalaoa mauka, across of the Lokahi Subdivision on Kaiminani Drive.

Impacts and Mitigation Measures

Due to the nature of the proposed improvements, significant impacts to fire services and demand for fire services are not anticipated. The proposed project will have a beneficial impact on fire protection throughout the water service area by increasing water supply and storage capacity for more reliable service for domestic demand as well as fire protection.

3.16.3 Health Care Services

Kona Community Hospital is a full service hospital located in Kealakehe, approximately 15 miles from the project site. Hospital services include acute in-patient medical and surgical care, obstetrics, skilled nursing, intensive care, and outpatient surgery. Outpatient and ancillary services include a 24-hour emergency room, laboratory, radiology, pharmacy, occupational, physical, respiratory and speech therapy, and dietary services.

Impacts and Mitigation Measures

Due to the nature of the proposed improvements, significant impacts to medical services are not expected.

3.16.4 Public Education Services

The Kona public school system comprises the Konawaena and Kealakehe High School complexes.

The Konawaena High School complex includes Konawaena Elementary School, Konawaena Middle School, Konawaena High School, Hookena Elementary School and Honaunau Elementary School.

The Kealakehe High School complex comprises Kealakehe High School, Kealakehe Intermediate School, Holualoa Elementary School, Kealakehe Elementary School, and Kahakai Elementary School.

Impacts and Mitigation Measures

The proposed project does not involve residential construction and will not increase demand for public school services.

3.16.5 Recreation

Numerous public recreational resources are provided throughout North and South Kona. Kailua Park, Kona Imin Center, Hale Halawai and the Harold H. Higashihara Park are in close proximity to the project site.

Impacts and Mitigation Measures

The proposed project does not involve residential construction and will not increase demand for recreational facilities and services.

3.17 Roadway System and Traffic

The proposed one million gallon reservoir and facility improvements would be located within, and as far as, approximately 815 feet mauka of Mamalahoa Highway with alternative pipeline replacement work ranging from 450 to 1,250 feet along Mamalahoa Highway between Old Government Road and Kaiminani Drive.

Impacts and Mitigation Measures

In the short-term, construction activities at the project site will generate traffic associated with commuting construction workers, delivery of construction material, removal of construction wastes, and movement of construction equipment. Associated delays are expected to be intermittent and relatively brief. The installation of the larger diameter pipe along Mamalahoa Highway will likely cause delays due to the presence of heavy equipment and the movement of materials on and near the highway. In the short-term, construction activities requiring periodic lane closures will inconvenience area residents and businesses.

In the long-term, traffic at the proposed project site will be limited to that associated with occasional maintenance and testing at the facility.

3.18 Utilities

3.18.1 Water System

The existing water system is maintained by DWS. The proposed project consists of upgrading the DWS infrastructure at the site and constructing an additional reservoir system and transmission pipelines that will be dedicated to DWS.

Impacts and Mitigation Measures

Implementation of the reservoir improvements will not increase the demand for water in the vicinity. The improvements will increase water supply in the area for existing demand, fire protection, and domestic uses.

3.18.2 Wastewater System

The project site is not served by a wastewater treatment facility.

Impacts and Mitigation Measures

The proposed project will not generate wastewater.

3.18.3 Drainage

The project site is located at the edge of a forested area extending up the slopes of Haulalai. There are no surface streams or drainage ways within or near the project site.

Impacts and Mitigation Measures

Storm runoff from the project site during site preparation will be controlled in compliance with the Hawaii County's "Storm Drainage Standard," October 1970. All grading work will comply with Chapter 10 of the Hawaii County Code. Grading operations will also comply with the Erosion and Sedimentation Control Standards and Guidelines of the County of Hawaii Department of Public Works, as well as Chapters 11-54 and 11-55, HAR, regarding Water Quality Standards and Water Pollution Control, respectively. The area of soil disturbance at the project site, which includes the proposed reservoir and improved transmission lines will exceed one acre. Therefore, pursuant to HAR Chapter 11-55, a National Pollutant Discharge Elimination System (NPDES) Notice of Intent (NOI) for Construction Storm Water Activities will be required from the State of Hawaii Department of Health (DOH) before construction begins at the proposed project site. In conjunction with the NPDES NOI, a Best Management Practices (BMP) Plan will be prepared for construction activities within the project site. The BMP may include typical mitigation measures such as using silt fences, protecting inlets and catch basins, appropriately stockpiling materials on-site to prevent runoff and building over, and establishing landscaping as early as possible on disturbed soils to minimize length of exposure.

3.18.4 Electrical and Communications Systems

Hawaii Electric Light Company (HELCO) supplies electrical power to the DWS facility.

Impacts and Mitigation Measures

The proposed increase in pumping rate from 500 gpm to 700 gpm at the reactivated well within the existing Kalaoa Reservoir facility will proportionately increase electrical demand.

Makai view from Mamalahoa Highway overlooking Kona Palisade Estates

Makai view from proposed reservoir site (TMK 7-3-004:11)

South facing view from Old Government Road and Mamalahoa intersection.

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KALAOA WATER SYSTEM IMPROVEMENTS

KALAOA VIEWPLANE

Photographs

C

4. RELATIONSHIP TO LAND USE PLANS AND POLICIES

4.1 State Land Use Districts

The State Land Use Law, Chapter 205, Hawaii Revised Statutes (HRS), is intended to preserve, protect and encourage the development of lands in the State for uses that are best suited to the public health and welfare of Hawaii's people. The State Land Use Commission classifies all lands in the State into four land use districts: Urban, Agricultural, Conservation, and Rural.

The project activities are within the State Land Use "Agricultural" district and are consistent with this designation (see Figure 8).

4.2 County Zoning

The County of Hawaii zoning ordinance sets forth specific development regulations to implement the policies of the County General Plan. The project site is within the Agricultural (A-20a) zoning district (see Figure 9). The reservoir and associated facility improvements are permitted uses in that Agricultural zoning district.

4.3 County General Plan

The County of Hawaii General Plan sets forth goals and policies for the long-range comprehensive development of the Island of Hawaii. The project site is within the Important Agricultural Lands and Low Density Urban area of the Land Use Pattern Allocation Guide (LUPAG) (see Figure 10). The proposed project is consistent with the following goals, policies and standards of the County of Hawaii General Plan, which was adopted by the Hawaii County Council in February 2005:

A. Economic

<u>Goals</u>

- Economic development and improvement shall be in balance with the physical, social, and cultural environments of the island of Hawaii.

<u>Policies</u>

- Require a study of the significant cultural, social and physical impacts of large developments prior to approval.
- The land, water, sea, and people shall be considered as essential resources for present and future generations and should be protected and enhanced through the use of economic incentives.

B. Flooding and Other Natural Hazards

<u>Goals</u>

- Protect Human life.
- Prevent damage to man-made improvements

- Control pollution.
- Reduce surface water and sediment runoff.
- Maximize soil and water conservation.

Policies

- Development-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works and in compliance with State and Federal laws.
- The County and the private sector shall be responsible for maintaining and improving existing drainage systems and constructing new drainage facilities.

Standards

- "Storm Drainage Standards," County of Hawaii, October, 1970, and as revised.
- Applicable standards and regulations of Chapter 10, "Erosion and Sedimentation Control," of the Hawaii County Code.

C. Natural Beauty

Goals

- Protect scenic vistas and view planes from becoming obstructed.
- Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.

Policies

- Protect the views of areas endowed with natural beauty by carefully considering the effects of proposed construction during all land use reviews.

Standards

The following standards provide guidelines for designating sites and vistas of extraordinary natural beauty that shall be protected.

- Vistas of distinctive features.

D. Public Utilities

Goals

- Ensure that properly regulated, adequate, efficient and dependable public and private utility services are available to users.
- Maximize efficiency and economy in the provision of public utility services.
- Design public utility facilities to fit into their surroundings or concealed from public view.

Policies

- Public utility facilities shall be designed to complement adjacent land uses and shall be operated to minimize pollution or disturbance.

- Provide utilities and service facilities that minimize total cost to the public and effectively service the needs of the community.
- Improvement of existing utility services shall be encouraged to meet the needs of users.
- All water systems shall be designed and built to Department of Water Supply standards.

Standards

- Public and private water systems shall meet the requirements of the Department of Water Supply and the Subdivision Control Code.

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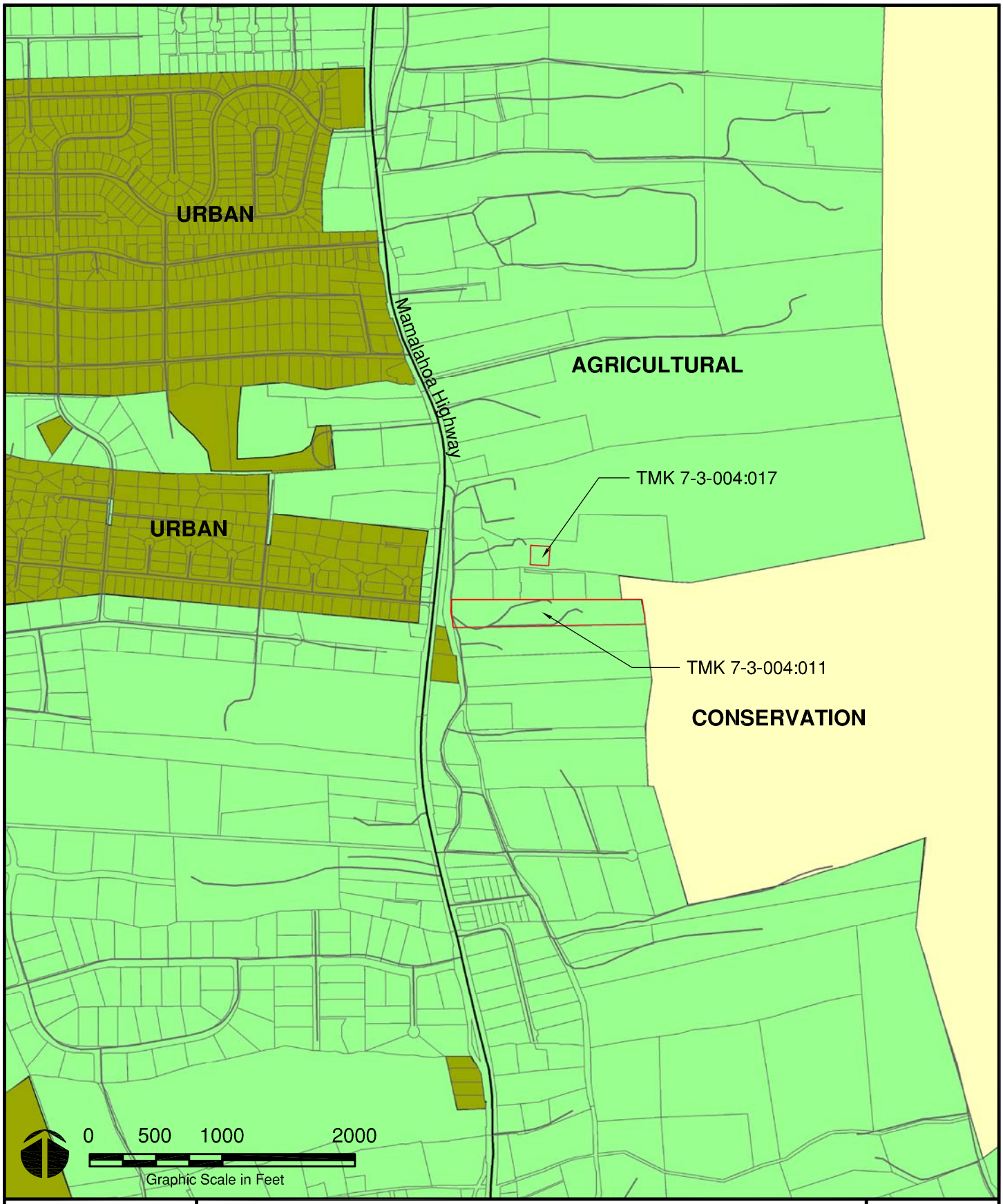

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KALAOA WATER SYSTEM IMPROVEMENTS

STATE LAND USE MAP

FIGURE 8

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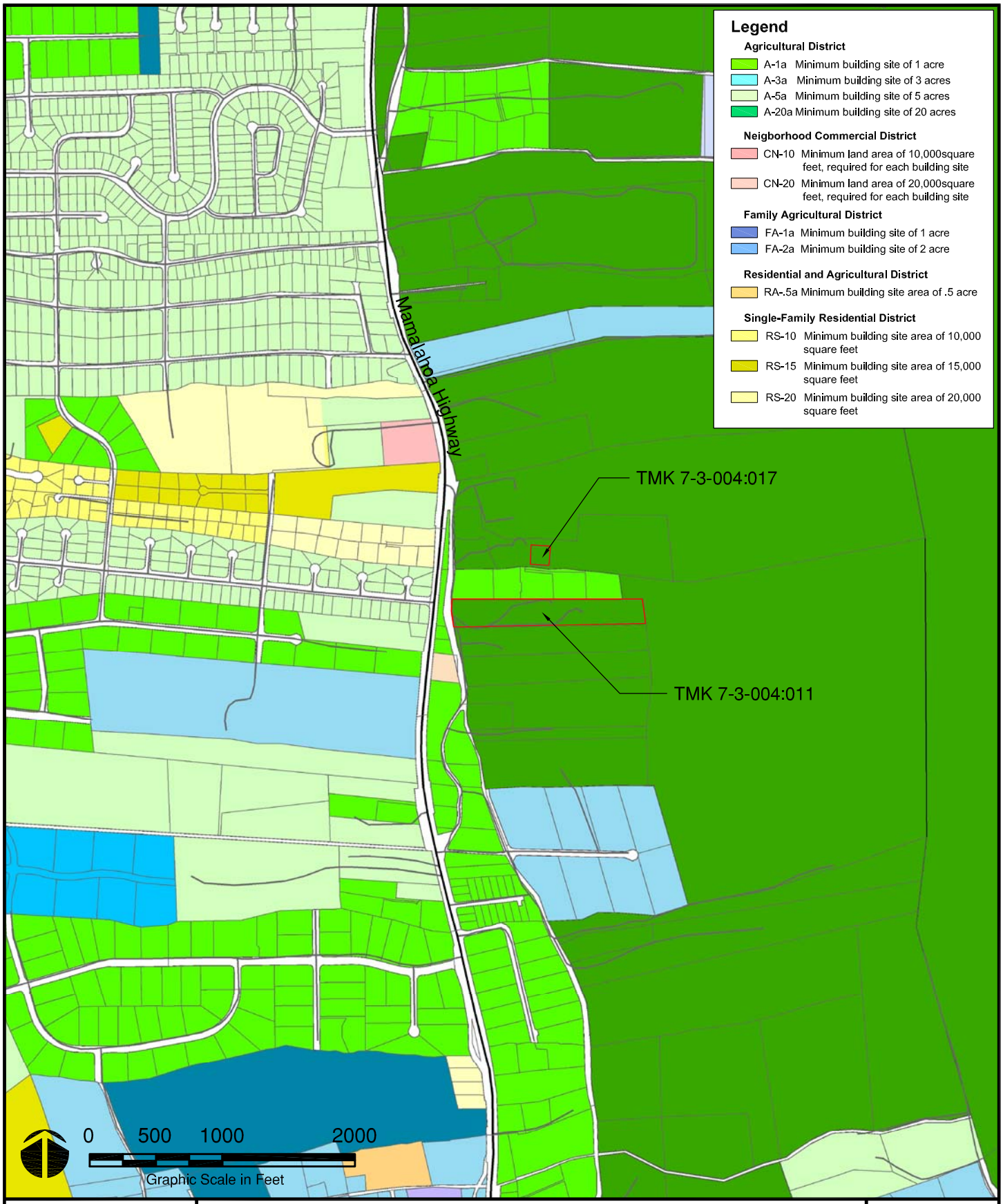

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KALAOA WATER SYSTEM IMPROVEMENTS

ZONING MAP

FIGURE 9

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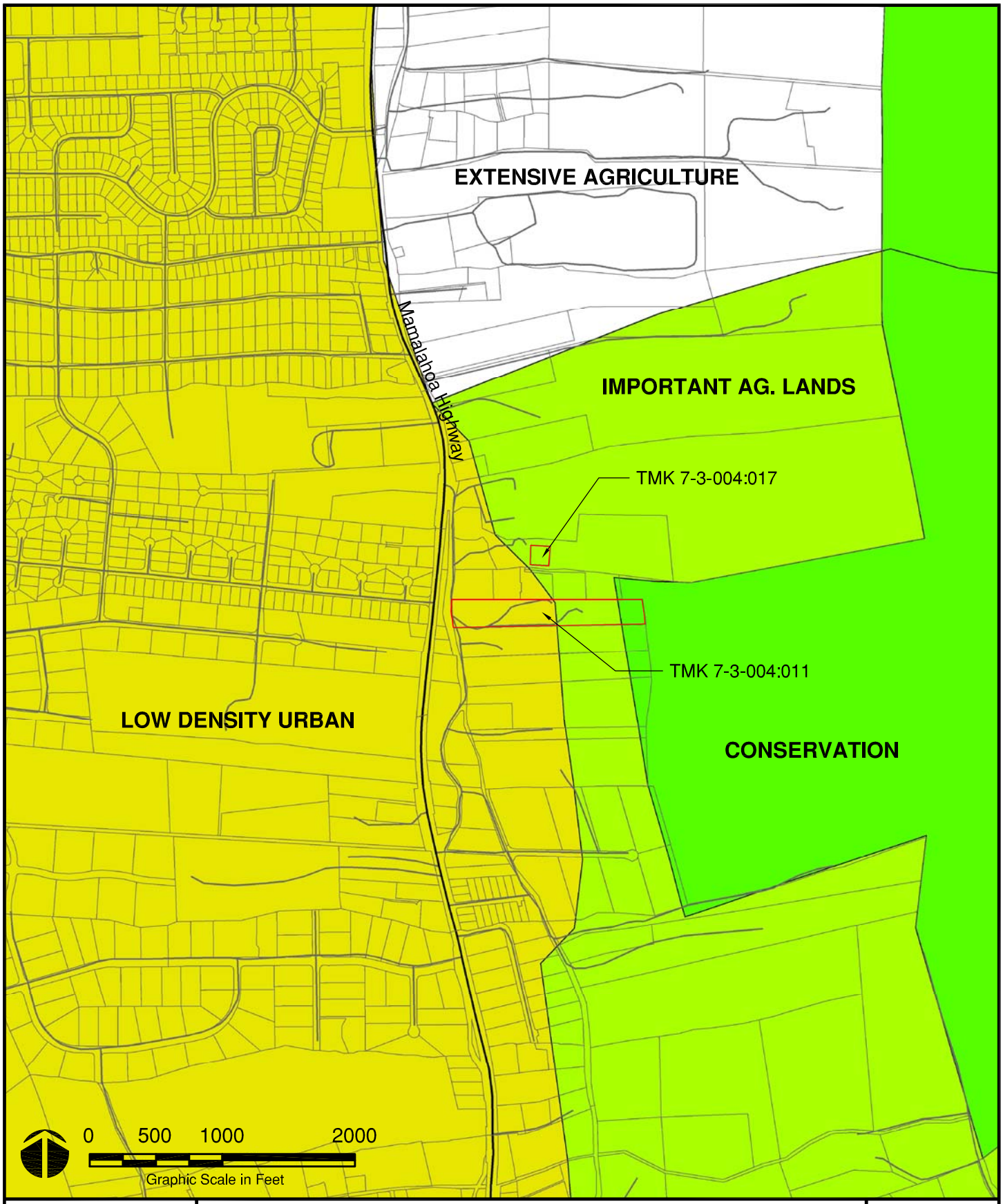

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KALAOA WATER SYSTEM IMPROVEMENTS

LAND USE PATTERN ALLOCATION GUIDE (LUPAG)

FIGURE 10

5. ALTERNATIVES TO THE PROPOSED ACTION

5.1 No Action Alternative

The No Action Alternative would not fulfill a condition of rezoning for the proposed Seascape Condominium, nor would it help meet existing demand for fire protection and domestic needs in the service area.

5.2 Alternative Project Improvements

After discussions regarding the acquisition of land from landowners of parcels in the vicinity of the project area, the present site was chosen based on the landowner‘s willingness to accommodate the proposed project and sell land to the applicant selected. Alternative routes for pipelines are being considered.

6. ANTICIPATED DETERMINATION OF FONSI

Potential impacts of the proposed project have been evaluated in accordance with the significance criteria of Section 11-200-12 of the Department of Health's Administrative Rules. Discussion of the project's conformance to the criteria is presented as follows:

(1) Involve an irrevocable commitment to loss or destruction of any natural cultural resource;

The project will not involve irrevocable loss or destruction of any natural cultural resource, as discussed in Section 3.14.

(2) Curtail the range of beneficial uses of the environment;

The project will not curtail the beneficial uses of the environment.

(3) Conflict with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed actions adhere to the State's long-term environmental policies, goals and guidelines for the State and County Agricultural district (see Figure 8, 9 and 10). Consistent with the State's environmental policy purpose in Section 344-1, Hawaii Revised Statutes (HRS), the proposed reservoir and pipeline improvements encourage, "productive and enjoyable harmony between people and their environment, promoting efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity".

(4) Substantially affect the economic or social welfare of the community or state;

Periodic road and lane closure during the alternative pipeline improvements will be an inconvenience for residents, businesses and visitors traveling through the project area. Proposed limitations on the time and days of road and lane closures would be permitted and are based on minimizing such inconvenience. In the long-term, the proposed project will benefit the economic or social welfare by meeting the water service needs in the region by addressing existing and projected water demands for fire protection and domestic uses.

(5) Substantially affect public health;

No impacts to the public's health and welfare are anticipated.

(6) Involve substantial secondary impacts, such as population changes or effects on public facilities;

No substantial secondary impacts are anticipated as a result of the project since the proposed project does not affect population change or diminish the quality of public facilities.

(7) Involve a substantial degradation of environmental quality;

Construction activities associated with the proposed project are anticipated to result in relatively insignificant short-term impacts to noise, air quality, and traffic in the immediate project vicinity.

(8) Individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The proposed project will not have significant cumulative impacts or involve a commitment for larger actions. Its purpose is to address water needs of a previously approved development, the Seascape Condominium affordable housing project, as well as existing demand in the water service area.

(9) Substantially affect a rare, threatened or endangered species, or its habitat;

There are no known rare, threatened or endangered species of flora or fauna or associated habitat on the project site that could be adversely affected, as discussed in Section 3.9 and 3.10.

(10) Detrimentally affect air or water quality or ambient noise levels;

No significant short or long term detrimental impacts on water quality, ambient noise levels, or air are anticipated, as discussed in Sections 3.3, 3.11, and 3.12, respectively.

(11) Affect or is likely to suffer damage by being located in an environmentally - sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

No significant short- or long-term impacts on environmentally sensitive areas are anticipated. The proposed reservoir and transmission line improvement measures will not suffer damage by being located in the geological hazardous zone as discussed in Sections 3.6, 3.7, and 3.8.

(12) Substantially affect scenic vistas and view planes identified in county or state plans or studies; or

No significant impact on scenic vistas and view planes identified in county or state plans or studies is anticipated, as discussed in Section 3.13.

(13) Require substantial energy consumption.

Project construction will not require a substantial increase in energy consumption as discussed in Section 3.18.4.

7. REFERENCES

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10. Stearns, Harold T. *Geology of the State of Hawaii, Second Edition.* 1985

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8. CONSULTATION

8.1 Pre-Assessment Consultation

Pre-assessment consultation was conducted in December 8, 2006. The following agencies and organizations were contacted during the preparation of the Draft EA. Of the seven parties that formally replied during the pre-assessment period, some had no comments, as indicated by the ✓, while others provided substantive comments, as indicated by ✓✓. All written comments are reproduced herein.

Federal
✓✓ U.S. Army Engineer Division
U.S. Natural Resources Conservation Services

State
Department of Business, Economic Development and Tourism (DBEDT)
DBEDT, Office of Planning
✓ DBEDT, Land Use Commission
Department of Health (DOH)
✓ DOH, Office of Environmental Quality Control
✓ Department of Land and Natural Resources (DLNR)
DLNR, Historic Preservation Division
✓ DLNR, Engineering Division
✓✓ Office of Hawaiian Affairs

County of Hawaii
Department of Parks and Recreation
✓✓ Planning Department
Department of Public Works
Department of Water Supply

Organizations/Individuals
Kona Palisades Estates Community Association
Mauna Ziona Congregational Church
Earl Wheaton
Hoona
Robert Freitas
Pine Tree Land Company
Akaiko G Akana Trust
Kelvin Anderson

Pre Assessment Comment Letters

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 223
FORT SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF: CEPOH-EC-T

EM
FD

December 12, 2006

Civil Works Technical Branch

Mr. Earl Matsukawa, Project Manager
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Mr. Matsukawa:

Thank you for the opportunity to review and comment on the Pre-Assessment Consultation for a Draft Environmental Assessment for the Kalaoa Reservoir Improvements, Kalaoa, Island of Hawaii (Tax Map Keys: 7-3-4: 11 and 17). According to the Flood Insurance Rate Map Index dated April 2, 2004, panels have not been printed for this area. These areas have been determined as Zone X (unshaded; outside of the 500-year floodplain).

The documents have been forwarded to our Regulatory Branch to determine Department of the Army permit requirements. They will respond to your office under separate cover. Should you require additional information, please contact Ms. Jessie Dobinchick of my staff at (808) 438-8876.

Sincerely,

James Pennaz

James Pennaz, P.E.
Chief, Civil Works Technical Branch

LINDA LINGLE
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, Hawaii 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

EM

January 2, 2007

Mr. Earl Matsukawa, Project Manager
Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

RECEIVED
JAN 04 2007
WILSON OKAMOTO CORPORATION

Dear Mr. Matsukawa:

Subject: Pre-Assessment Consultation
Draft Environmental Assessment
Kalaoa Reservoir Improvements
Tax Map Key Nos.: 7-3-004:017 and 11 (por.)

We have reviewed the project summary forwarded by your correspondence dated December 8, 2006, for the proposed improvements to the existing County of Hawaii Department of Water Supply Kalaoa Reservoir facility.

Based upon review of the subject application, we have the following comments:

1. We confirm that the subject parcels are located within the State Land Use Agricultural District.

2. Pursuant to §205-4.5 (7), Hawai`i Revised Statues, and given the location, scope, and nature of the proposed activity, we have no further comments to offer at this time.

Thank you for the opportunity to comment on the proposed action. Please feel free to contact Max Rogers of my office at 587-3822 if you have any questions or need clarification.

Sincerely,

ANTHONY J. H. CHING
Executive Officer

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
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HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

EM
TO

RECEIVED
DEC 1 5 2006
WILSON OKAMOTO CORPORATION

December 14, 2006

Mr. Earl Matsukawa
Wilson Okamoto
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Subject: Pre-Consultation for Kalaoa Reservoir Improvements

Dear Mr. Matsukawa,

We are in receipt of your letter dated December 8, 2006 for the Kalaoa Reservoir Improvements.

At this time, we have no comments. We will review the documents and will offer any comment if need. Thank you for the opportunity to review your request and should you have any questions, please feel free to call our office at 586-4185.

Sincerely,

Genevieve Salmonson

Genevieve Salmonson
Director

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

EM

January 8, 2007

Wilson Okamoto Corporation
1907 South Beretania Street Suite 400
Honolulu, Hawaii 96826

Attention: Earl Matsukawa

Gentlemen:

Subject: Pre-Assessment Consultation for Kalaoa Reservoir Improvements, Kalaoa, Hawaii, Tax Map Key: (3) 7-3-4:17 and portion 11

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from the Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Russell Y. Tsuji
Administrator

Cc: Central Files

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 15 2006

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
x Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
__Div. of Water Resource Management
__Office of Conservation & Coastal Lands
x Land Division – Hawaii District

FROM: Russell Y. Tsuji
SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment
LOCATION: Kalaoa, Hawaii, TMK: (3) 7-3-4:17 and por 11
APPLICANT: Wilson Okamoto Corporation on behalf of Seascape Development, LLC by Westpro Holdings, LLC

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by December 26, 2006.

A copy of the document is available for your review in Land Division office, Room 220.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed: Cait T. Hamilton
Date: 12/27/06

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/RYT
ReF.: PreConDEAKalaoaedsImpvts
Hawaii.343

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X The National Flood Insurance Program does not have any regulations for developments within Zone X

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.

( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.

( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments:

( ) Other:_____

Should you have any questions, please call Ms. Alyson Yim of the Planning Branch at 587-0259.

Signed: Eric T. Hirano
ERIC T. HIRANO, CHIEF ENGINEER

Date: 12/27/06

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

EM
TO

RECEIVED
JAN 05 2007
WILSON OKAMOTO CORPORATION

HRD06/2841

January 2, 2007

Earl Matsukawa
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 702
Honolulu, HI 96826

RE: Pre-Environmental Assessment Consultation for the Proposed Improvements to the Kalaoa Reservoir Facility, Kailua-Kona, Hawai'i Island, TMK 7-3-04: 17 and 11 (por.).

Dear Mr. Matsukawa,

The Office of Hawaiian Affairs (OHA) is in receipt of your December 14, 2006 submission and offers the following comments:

Our staff recommends that the applicant contact Ruby McDonald of OHA's Kailua-Kona office as well as Janice Yang of the Kona Branch of the Association of Hawaiian Civic Clubs in support of your pre-Environmental Assessment consultation effort. Thank you for your continued correspondence.

OHA asks that, in accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if the project moves forward, and if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) shall be contacted.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck, Native Rights Policy Advocate, at (808) 594-0239 or jessey@oha.org.

Aloha,

Clyde W. Nāmu'o
Administrator

C: Ruby McDonald
OHA Community Affairs Coordinator (Kailua-Kona)
75-5706 Hanama Pl., Suite 107
Kailua-Kona, HI 96740

Harry Kim
Mayor

Christopher J. Yuen
Director

Brad Kurokawa, ASLA
LEED® AP
Deputy Director

County of Hawaii
PLANNING DEPARTMENT
101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-3043
(808) 961-8288 • FAX (808) 961-8742

EM

December 28, 2006

RECEIVED
JAN 04 2007
WILSON OKAMOTO CORPORATION

Mr. Earl Matsukawa
Project Manager
Wilson Okamoto Corporation
1907 S. Beretania St., Suite 400
Honolulu HI 96826

Dear Mr. Matsukawa:

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment
Applicant: Seascape Development, LLC by Westpro Holdings, LLC
Project: Kalaoa Reservoir Improvements
Tax Map Key: 7-3-4:17 and Portion of 11

This is to acknowledge receipt of your December 8, 2006 letter requesting our comments on the Kalaoa Reservoir Improvements.

The project consists of the following:

1. Construction of a new 1.0 million gallon reservoir on a parcel to be subdivided from TMK: 7-3-4:ll.
2. Facility improvements to the existing well at Kalaoa Reservoir facility on TMK: 7-3-4:17.
3. Pipeline improvements that include upgrading approximately 1,800 feet of existing 8-inch transmission line to 12-inch diameter pipe.
4. Replace 800 feet of existing 12-inch pipe with new 16-inch diameter pipe.
5. Connecting the new and existing reservoirs with approximately 800 feet of new 12-inch pipe.

After reviewing the project summary, we affirm the State, County and General Plan land use designations and that the project site is not located in the County's Special Management Area.

For your information, Hawaii County Code, Chapter 25, Section 25-4-11 states the following:

(a) Communication, transmission, and power lines of public and private utilities and governmental agencies are permitted uses within any district.
(b) Any substation used by a public utility for the purpose of furnishing telephone, gas, electricity, water, radio, or television shall be a permitted use in any district provided that the use is not hazardous or dangerous to the surrounding area and the director has issued plan approval for such use."

Therefore, although the Kalaoa Reservoir Improvements is considered to be a permitted use on the subject parcel, Plan Approval is required from the Planning Director prior to obtaining a building permit for the proposed improvements.

Please provide us with a copy of the Draft Environmental Assessment for our review and file.

If you have questions, please feel free to contact Esther Imamura of our office at 961-8288, extension 257.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

ETI:cd
P:\wpwin60\ETI\EAdraftPre-consul\Matsukawa Kalaoa Reservior Imp.doc

xc: Planning Department, Kona

Appendix A

Botanical Survey
Palmer & Associates Consulting

Botanical Surveys

Existing Kalaoa Water Tank
(TMK 7-3-4: 17)
and
Proposed Tank and Associated Easements
(TMK 7-3-4: 11)

North Kona, Hawaii

Prepared for:
Wilson/Okamoto Corp.
1907 S. Beretania St., Suite 400
Honolulu, Hawaii 96826

by:
Palmer & Associates Consulting
P. O. Box 637
Pahoa, Hawaii 96778
December 2006

Contents

Introduction

We conducted a botanical survey of two TMKs (project area) near Kailua-Kona, Island of Hawaii, as part of planning studies for a proposed water storage tank and pump facility. TMK 7-3-4: 17 is the site of an existing water tank. TMK 7-3-4: 11, one parcel south of the existing tank, is the site of a proposed additional water storage tank and associated pipeline easements (Figures 1 and 2).

The existing tank (TMK 7-3-4: 17) site would be unmodified except for the addition of a a proposed new pump. The proposed new tank project (TMK 7-3-4: 11) would change the site from its current use, with existing vegetation on the site being removed or highly altered.

Methods

The Botanical survey was conducted as follows: A field team of two botanists (Rex Palmer, Ph.D. and a field assistant.) carried out a 100% visual survey of the project area. Significant botanical resources found during the field surveys, including botanically rare plants, U. S. Fish and Wildlife Service designated plant species (USFWS Listed Endangered, USFWS Threatened, USFWS Candidate, and USFWS Species Of Concern plants) and any sensitive or unique habitats or vegetation types were to be documented. Any rare plants, USFWS designated plants, and sensitive habitats were located by GPS coordinates, photographed, mapped,

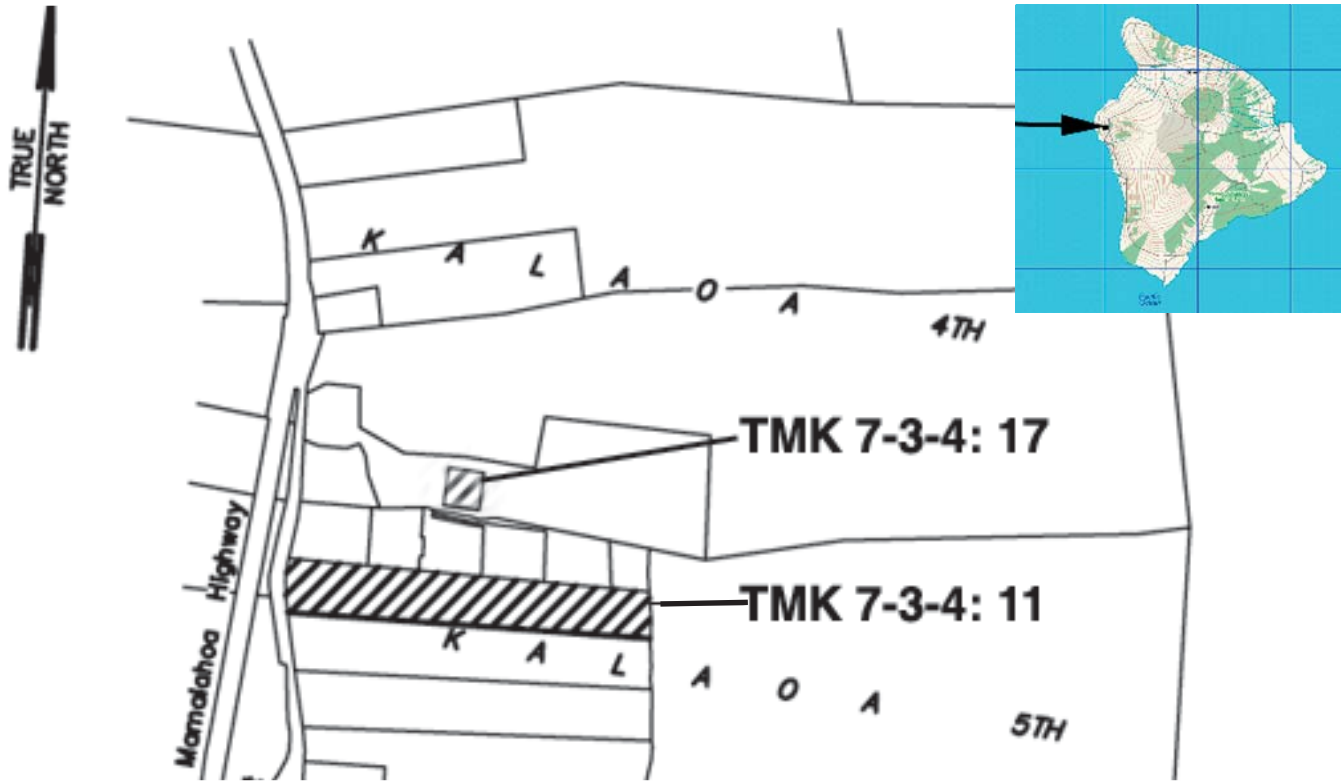

Figure 1. Location of areas surveyed.

Figure 2. Air photo of TMKs surveyed. The existing water storage tank (TMK 7-3-4: 17) can be seen in the upper part of the photo.

and described. Field surveys were conducted on November 30, 2006. Plant nomenclature follows Wagner, et al (1999) for flowering plants and Palmer (2003) for ferns. Staples and Herbst (2005) and Neil (1965) were used for names of cultivated plants and some weeds.

Results

The existing water storage tank (TMK 7-3-4: 17) is surrounded by a chain-link fence. Within the fence, the ground around the tank is gravel and devoid of plant life. Outside the fence, the land is forested. On the north, west, and south sides of the tank site the forest is dominated by introduced rose apple (*Syzygium jambos*) with a mixture of other introduced alien plant species (see species list in the appendix). On the east, mauka side of the tank site native ‘ohi’a forest occurs. In the vicinity of the tank site this native forest is infested with alien plants including rose apple and Christmas berry (*Schinus terebinthifolius*). We were not allowed access to the native ‘ohi’a forest further upslope, but from what we observed from the tank site, the native forest there is less invaded by alien plants than that adjacent to the tank site. Still further upslope is the Makaula-Ooma Forest Reserve. The native forest mauka of the project area may support rare and endangered plants. The proposed project, however, will have no direct effects on botanical resources in the native forest or the forest reserve.

TMK 7-3-4: 11 is highly disturbed and occupied by mostly alien, introduced plants

(see appendix). Much of the site is dominated by introduced elephant grass *(Pennisetum purpureum),* with scattered introduced silk-oak *(Grevillea robusta)* trees. A few remnant native ‘ohi’a also occur.

No endangered or rare plants were found in either of the two TMKs and neither TMK contains unique or sensitive habitats. Both TMKs are highly modified from their pristine condition, with the original native forest vegetation having been removed many years ago. The existing water storage tank (TMK 7-3-4: 17) is adjacent to native ‘ohi’a forest but none of the proposed project actions would affect significant native vegetation.

Conclusions

The TMKs surveyed do not support rare and endangered native plants nor unique or sensitive habitats. Both TMKs are highly disturbed and modified from their pristine condition, and there is essentially no native vegetation on either TMK. Mauka of the two TMKs native forest occurs, but none of the proposed project actions will affect the native forest. We conclude that the proposed project will have no negative effects on botanical resources, native habitats or rare and endangered plants.

REFERENCES

Neil, M.C. 1965. *In Gardens of Hawaii.* BMSP # 50. Bishop Museum Press. Honolulu, HI. 924p.

Palmer, D.D. 2003. *Hawai'i's Fern and Fern Allies.* University of Hawai'i Press. Honolulu, HI. 324p.

Staples, G.W. & Herbst, D.R. 2005. *A Tropical Garden Flora.* Bishop Museum Press. Honolulu, HI. 908p.

USFWS. 2005. *Listed and Candidate Species, as Designated Under the U.S. Endangered Species Act: Hawaiian Islands Plants.* USFWS Pacific Islands Office. Honolulu, HI. 25p.

Wagner, W.L., Herbst, D.L., & Sohmer, S.H. 1999. *Manual of the Flowering Plants of Hawai'i: Revised Edition.* University of Hawai'i Press. Honolulu, HI. 1919p.

Appendix

Plant Species List

Plants encountered during field surveys on November 30, 2006

PLANTS of TMK 7-3-4: 17 and TMK 7-3-4: 11
NORTH KONA DISTRICT
ISLAND of HAWAI'I

The following list represents vascular plant species encountered on November 30, 2006

DICOTYLEDONS

FAMILY Genus / species	Common Name	Distribution*
ACANTHACEAE	Acanthus Family	
Justica betonica L.	shrimp plant	A
Thunbergia alata Bojer ex Sims	black-eyed Susan	A
AMARANTHACEAE	Amaranth Family	
Amaranthus spinosus L.	spiny amaranth	A
ANACARDIACEAE	Mango Family	
Mangifera indica L.	mango	A
Schinus terebinthifolius Raddi	Christmasberry	A
ARAILIACEAE	Ginseng Family	
Schefflera actinophylla (Endl.) Harms	octopus tree	A
ASTERACEAE	Sunflower Family	
Bidens pilosa L.	Spanish needles	A
Conyza bonariensis (L.) Cronq.	hairy horseweed	A
Crepis capillaris (L.) Wallr.	hawk's beard	A
Pluchea symphytifolia (Mill.) Gillis	sourbush	A
Senecio madagascariensis Poir	groundsel	A
Senecio mikanioides Otto ex Walp.	German ivy	A
Sigesbeckia orientalis L.	small crown beard	A
Sonchus oleraceus L.	sow thistle	A
Synedrella nodiflora (L.) Gaertn.	nodeweed	A
BEGONIACEAE	Begonia Family	
Begonia reniformis Dryander	grape-leaf begonia	A
BIGNONIACEAE	Bignonia Family	
Spathodea campanulata P. Beauv.	African tulip tree	A
BRASSICACEAE	Mustard Family	
Brassica nigra (L.) W. Koch	black mustard	A
Lepidium virginicum L.	pepperwort	A

BUDDLEIACEAE	Butterfly Bush Family	
Buddleia asiatica Lour.	dog tail	A
CACTACEAE	Cactus Family	
Hylocereus undatus (Haw.) Britton & Rose	night-blooming cereus	A
CARYOPHYLLACEAE	Pink Family	
Drymaria cordata (L.) Willd. ex Roem. & Schult.	pipili	A
CASUARINACEAE	She-Oak Family	
Casuarina equisetifolia L.	ironwood	A
CONVOLVULACEAE	Morning Glory Family	
Ipomoea alba L.	moon flower	A
Merremia tuberosa (L.) Rendle	wood rose	A
CRASSULACEAE	Orpine Family	
Kalanchoe pinnata (Lam.) Pers.	air plant	A
CUCURBITACEAE	Cucumber Family	
Momordica charantia L.	bitter melon	A
EUPHORBIACEAE	Poinsettia Family	
Aleurites moluccana (L.) Willd.	kukui	P
Chamaesyce hirta (L.) Millsp.	hairy spurge	A
Euphorbia heterophylla L.	kaliko	A
Ricinus communis L.	castor bean	A
FABACEAE	Bean Family	
Chamaecrista nictitans (L.) Moench	partridge pea	A
Desmodium incanum DC	Spanish clover	A
Glycine wightii (Wight & Arnott) Verdc.	beggar weed	A
Leucaena leucocephala (Lam.) de Wit	haole koa	A
LAMIACEAE	Mint Family	
Hyptis pectinata (L.) Poit.	comb hyptis	A
LAURACEAE	Laurel Family	
Persea americana Mill.	avocado	A
MALVACEAE	Hibiscus Family	
Sida rhombifolia L.	false ‘ilima	A
MENISPERMACEAE	Moonseed Family	
Cocculus trilobus (Thunb.) DC	huehue	I

MYRTACEAE	Myrtle Family	
Metrosideros polymorpha Gaud.	‘ohi’a	A
Psidium cattleianum Sabine	strawberry guava	A
Psidium guajava L.	guava	A
Syzygium jambos (L.) Alston	rose apple	A
OXALIDACEAE	Wood Sorrel Family	
Oxalis corniculata L.	‘ihi	P
PIPERACEAE	Pepper Family	
Peperomia leptostachya Hook. & Arnott	‘ala ‘ala wai nui	I
PLANTAGINACEAE	Plantain Family	
Plantago lanceolata L.	lance-leaved plantain	A
Plantago major L.	common plantain	A
PROTEACEAE	Protea Family	
Grevillea robusta A. Cunn. ex R. Br.	silver oak	A
RUBIACEAE	Coffee Family	
Coffea arabica L.	coffee	A
SCROPHULARIACEAE	Snapdragon Family	
Lophospermum erubescens D. Don	creeping gloxinia	A
SOLANACEAE	Nightshade Family	
Nicotiana glauca R. C. Graham	tree tobacco	A
TROPAEOLACEAE	Nasturtium Family	
Tropaeolum majus L.	nasturtium	A

MONOCOTYLEDONS

AGAVACEAE	Agave Family	
Cordyline fruticosa (L.) A. Chev.	ti / ki	P
Dracena fragrans (L.) K. Gawler	pleomele	A
ARACEAE	Aroid Family	
Epipremnum pinnatum (L.) Engl.	taro vine	A
COMMELINACEAE	Spiderwort Family	
Commelina diffusa N.L. Burm.	honohono	A

CYPERACEAE	Sedge Family		
Fimbristylis dichotoma (L.) Vahl		mau'u 'aki 'aki	I
Kyllinga brevifolia Rottb.		Kili'o'opu	A
POACEAE	Grass Family		
Digitaria violascens Link		violet crabgrass	A
Eleusine indica (L.) Gaertn.		wiregrass	A
Eragrostis brownei (Kunth) Nees ex Steud.		sheepgrass	A
Eragrostis tenella (L.) P. Beauv. ex Roem. & Schult.		lovegrass	A
Melinis minutifolia P. Beauv.		molasses grass	A
Oplismenus hirtellus (L.) P. Beauv.		basketgrass	A
Panicum maximum Jacq.		Guinea grass	A
Pennisetum purpureum Schumach.		elephant grass	A
Rhynchelytrum repens (Willd.) Hubb.		Natal redtop	A
Sporobolus indicus (L.) R. Br.		smutgrass	A
ZINGIBERACEAE	Ginger Family		
Hedychium flavescens N. Carey ex Roscoe		yellow ginger	A
Hedychium gardnerianum Sheppard ex Ker-Gawl.		kahili ginger	A

FERNS

NEPHROLEPIDACEAE	Sword Fern Family		
Nephrolepis multiflora (Roxb.) F.M. Jarrett ex C.V. Morton		sword fern	A
POLYPODIACEAE	Common Fern Family		
Phymatosorus grossus (Langsd.& Fisch.) Brownlie		laua'e	I
PTERIDACEAE	Wire Fern Family		
Pityrogramma austroamericana Domin		gold fern	A
Pteris vittata L.		ladder brake	A

*****Distribution (Geographical origin of a species)

A = Alien; introduced to Hawai'i after 1778 AD.
P = Polynesian; introduced to Hawai'i prior to 1778 AD.
I = Indigenous: native to Hawai'i and elsewhere.
E = Endemic: unique to Hawai'i.

Appendix B

Faunal Study
Rana Production, Ltd.

A Survey of Avian and Terrestrial Mammalian Species on TMK (3) 7-3-04:11 portion, and 17 Portion, at Kalaoa, North Kona District, Island of Hawai‘i.

DRAFT

Prepared by:

Reginald E. David
Rana Productions, Ltd.
P.O. Box 1371
Kailua-Kona, Hawai‘i 96745

Prepared for:

Wilson Okamoto Corporation
907 South Beretania Street, Suite 400
Honolulu, Hawai‘i 96826

January 27, 2007

Table of Contents

Figures & Tables

Introduction

This report summarizes the findings of avian and mammalian surveys conducted on portions of two parcels of land identified as TMK (3) 7-3-04:11, and 17. The property is located in Kalaoa, North Kona District, Island of Hawai‘i (Figure 1). The Hawaii County Department of Water Supply (DWS) is proposing to upgrade pumping infrastructure associated with an existing water tank located on a portion of TMK (3) 7-3-04:17. DWS is also proposing to construct a new storage tank and associated piping and infrastructure associated with connecting the new reservoir to the pump station on a portion of TMK (3) 7-3-04:11

The primary purpose of the surveys was to determine if there were any avian or mammalian species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai‘i’s endangered species programs on, or within in the immediate vicinity of the site. Federal and State of Hawai‘i listed species status follows species identified in the following referenced documents (Division of Land and Natural Resources (DLNR) 1998, Federal Register 2005, U. S. Fish & Wildlife Service (USFWS) 2005, 2006). Fieldwork was conducted on January 13, 2007.

Avian phylogenetic order and nomenclature follows *The American Ornithologists' Union Check-list of North American Birds 7th Edition* (American Ornithologists' Union 1998), and the 42nd through the 47th supplements to *Check-list of North American Birds* (American Ornithologists' Union 2000; Banks et al. 2002, 2003, 2004, 2005, 2006). Mammal scientific names follow *Mammals in Hawaii* (Tomich 1986). Naturalized flowering plant names follow *Manual of the Flowering Plants of Hawai‘i* (Wagner et al. and Wagner and Herbst, 1990, 1999). Place names follow *Place Names of Hawaii* (Pukui et al. 1974).

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document, which may be unfamiliar to the reader, are included at the end of the narrative text on Page 10.

General Site Description

The existing water tank is located on a portion of TMK (3) 7-3-4:17. It is surrounded with a chain link fence. The habitat within the fence line is graded and covered with gravel. The surrounding forest is dominated by alien species including rose apple (*Syzygium jambos*), Christmas berry (*Shinus terebinthifolius*), strawberry guava (*Psidium cattleianum*), guava (*Psidium guajava*), silk oak (*Grevillea robusta*) and numerous weedy species. The area to the north and east of the tank exclosure is vegetated in a mixed native forest. The other site, TMK (3) 7-3-04:11 is highly disturbed, having been almost completely cleared in the not-to-distant past. Vegetation on the site is almost totally alien, and is dominated by elephant grass (*Pennisetum purpureum*), with scattered silk oak and a few remnant *‘Ōhia* (*Metrosiderous polymorpha*), and several mango (*Mangifera indica*). There are several homes located between this parcel and the existing water tank which is located on TMK (3) 7-3-04:17.

The sites gently slope from east to west from a maximum elevation of ~ 1800-feet above mean sea level (ASL) on the eastern boundary, down to ~ 1685-feet ASL along the Old Government Road which serves as a frontage road paralleling Māmalahoa Highway (USGS 1996).

Figure 1- Kalaoa Water System Project Site
Aerial Photo showing the two parcels surveyed, the existing water tank can been seen in the upper center of the photograph

Avian Survey Methods

Four avian count stations were sited within the two parcels. Three were spaced equidistantly along a linear transect running from east to west through TMK (3) 7-3-04:11, another count station was sited adjacent to the existing water tank exclosure on TMK (3) 7-3-04:17. One eight-minute point count was conducted at each station. Field observations were made using Leitz 10 X 42 binoculars to sight birds and by listening for vocalizations. Counts took place between 07:30 a.m. and 10:30 a.m., the peak of daily bird activity. In an attempt to detect nocturnally flying seabirds over-flying the project area. An additional two hours were spent within the general project area on the evening of January 13, 2007. Time not spent counting was used to search the study site for species and habitats not detected during count sessions.

Avian Survey Results

A total of 233 individual birds of 17 different species, representing 10 separate families were recorded during station counts. All 17 species detected are considered to be alien to the Hawaiian

Islands, with one of them, Red Junglefowl (*Gallus gallus*) a domesticated species, not currently considered to be established in the wild on the Island of Hawai‘i (Table 1).

No avian species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai‘i’s endangered species programs were detected during the course of this survey.

Avian diversity and densities were in keeping with the habitat present on the site. Four species, Japanese White-eye (*Zosterops japonicus*), Zebra Dove (*Geopelia striata*), Common Myna (*Acridotheres tristis*), and House Finch (*Carpodacus mexicanus*), accounted for 41% of the total number of individual birds recorded. Japanese White-eyes were the most frequently recorded species, accounting for 16% of the total number of individual birds recorded during station counts. An average of 58 birds were recorded per station count .

Table 1- Avian Species Detected Within Kalaoa Well and Reservoir Sites

Common Name	Scientific Name	ST	RA
	GALLIFORMES		
	PHASIANIDAE - Pheasants & Partridges		
	Phasianinae - Pheasants & Allies		
Gray Francolin	*Francolinus pondicerianus*	A	0.50
Red Junglefowl	*Gallus gallus*	D	1.75
Kalij Pheasant	*Lophura leucomelanos*	A	1.50
	Meleagridinae - Turkeys		
Wild Turkey	*Meleagris gallopavo*	A	2.50
	COLUMBIFORMES		
	COLUMBIDAE – Pigeons & Doves		
Spotted Dove	*Streptopelia chinensis*	A	4.00
Zebra Dove	*Geopelia striata*	A	5.25
	PASSERIFORMES		
	TIMALIIDAE – Babblers		
Hwamei	*Garrulax canorus*	A	2.25
Red-billed Leiothrix	*Leiothrix lutea*	A	2.75
	ZOSTEROPIDAE – White-eyes		
Japanese White-eye	*Zosterops japonicus*	A	9.25
	STURNIDAE – Starlings		
Common Myna	*Acridotheres tristis*	A	4.75
	EMBERIZIDAE - Emberizids		
Yellow-billed Cardinal	*Paroaria capitata*	A	0.75
	CARDINALIDAE – Cardinals Saltators & Allies		
Northern Cardinal	*Cardinalis cardinalis*	A	2.25
	FRINGILLIDAE – Fringilline and Carduline Finches & Allies		

Common Name	Scientific Name	ST	RA
	Carduelinae – Carduline Finches		
House Finch	*Carpodacus mexicanus*	A	4.50
Yellow-fronted Canary	*Serinus mozambicus*	A	4.25
	PASSERIDAE - Old World Sparrows		
House Sparrow	*Passer domesticus*	A	3.00
	ESTRILDIDAE - Estrildid Finches		
	Estrildinae - Estrildine Finches		
African Silverbill	*Lonchura cantans*	A	3.25
Java Sparrow	*Padda oryzivora*	A	5.75

Key to table 1

ST Status
D Domesticated Species – Not currently considered established in the wild on Hawai‘i
A Alien Species – Species introduced to Hawai‘i by humans
RA Relative Abundance – Number of birds detected divided by the number of count stations (4)

Mammalian Survey Methods

All observations of mammalian species were of an incidental nature. With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or *‘ōpe‘ape‘a* as it is known locally, all terrestrial mammals currently found on the Island of Hawai‘i are alien species, and most are ubiquitous. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed and heard within the study area. Visual and electronic scans, using a Broadband AnaBat II® ultrasonic bat detector, were made for bats during crepuscular periods on the evening of January 13, 2007.

Mammalian Survey Results

A total of five mammalian species were detected during the curse of this survey, several dogs (*Canis f. familiaris*), were either seen and, or heard in various yards associated with the houses present within the project area. Three small Indian mongooses (*Herpestes a. auropunctatus*) were seen in various locations on the site, as were two cat (*Felis catus*), and one pig (*Sus s. scrofa*). Tracks, scat and sign of dogs, cats, pig, and horse (*Equus c. caballus*) were seen at various locations within the site. Hawai‘i‘s sole endemic terrestrial mammalian species, the endangered Hawaiian hoary bat, was not detected during the survey, All of the alien mammalian species recorded during this survey are deleterious to avian and floristic components of the remaining native ecosystems present on the Island.

Discussion

Avian Resources

Avian diversity and densities detected during this survey were in keeping with the results of at least one recent previous survey conducted on lands close to this site (David 2004). The findings of this survey are in keeping with the habitat present on the site.

Although not detected during the course of this survey, it is likely that the endangered Hawaiian Hawks (*Buteo solitarius*) forage over the subject property occasionally, as they are relatively widely distributed in the Kalaoa and Kaloko mauka areas (Klavitter 2000, David 2007). Hawaiian Hawks are currently found in nearly all habitats that still have some large tree components on the island. They are regularly seen foraging in the general project area. Hawk densities are highest in mature, native species dominated forests, with grassy under-stories. This habitat, with high amounts of forest edge, supports large populations of game birds and the four species of introduced rodents known from the island, all of which are prey items for the hawk. Additionally, this type of habitat also provides numerous perches and nesting sites suitable for this species (Klavitter 2000).

The Hawaiian Hawk, or *‘io*, is the only extant *falconiforme* in Hawai‘i. It is currently endemic to the Island of Hawai‘i. Sub-fossil remains indicate that it was also formerly found on Moloka‘i and Kaua‘i (Olson & James 1997). Several incidental unconfirmed sightings of this species exist from Kaua‘i (Dole 1879, Beaglehole, 1967) and Maui (Banko 1980c). This species was first mentioned in the western literature by Cook and King in 1784 and was scientifically described by Peale in 1848 from a specimen collected in “Kealakekua” (Medway 1981, Peale 1848).

Current population estimates based on John Klavitter’s research extrapolates that there are currently 1,457 Hawaiian Hawks that, in his estimation, is equal to or higher than what was present in pre-contact times (Klavitter 2000).

Hawaiian Hawks, like many other Hawaiian endemic avian species, have low mortality $\leq 9\%$, and reproductive rates, lay only one egg per season, fledge one chick, and live ~ 20 years (Klavitter 2000). The Hawaiian Hawk breeding season starts in late March, chicks hatch in May, and begin fledge in July (Griffin et al. 1998). Although hawks use resources in most forest habitats they usually pick *‘ōhi‘a* trees in which to nest. Of 112 nests found during the 1998 and 1999 nesting seasons, 82% of the nests were located in *‘ōhi‘a* trees (Klavitter 2000).

Although not detected during this survey it is possible that small numbers of the endangered endemic Hawaiian Petrel (*Pterodroma sandwichensis*), or *ua‘u*, and the threatened Newell’s Shearwater (*Puffinus auricularis newelli*), or *‘a‘o*, over-fly the project area between the months of May and November (Banko 1980a, 1980b, Day et al. 2003a, Harrison 1990).

Hawaiian Petrels were formerly common on the Island of Hawai‘i (Wilson and Evans 1890–1899). This pelagic seabird reportedly nested in large numbers on the slopes of Mauna Loa and in the saddle area between Mauna Loa and Mauna Kea (Henshaw 1902), as well as at the mid to high elevations of Mount HualÅlai. It has, within recent historic times, been reduced to relict breeding colonies located at high elevations on Mauna Loa and, possibly, Mount HualÅlai (Banko 1980a, Banko et al. 2001, Cooper and David 1995, Cooper et al. 1995, Day et al. 2003, Harrison 1990, Hue et al. 2001, Simons and Hodges 1998).

Newell’s Shearwaters were formerly common on the Island of Hawai‘i (Wilson and Evans 1890–1899). This species breeds on Kaua‘i, Hawai‘i and Moloka‘i in extremely small numbers.

Newell's Shearwater populations have dropped precipitously since the 1880s (Banko 1980b, Day et al., 2003b). This pelagic species nests high in the mountains in burrows excavated under thick vegetation, especially '*uluhe* (*Dicranopteris linearis*) fern.

The primary cause of mortality in both Hawaiian Petrels and Newell's Shearwaters is thought to be predation by alien mammalian species at the nesting colonies (U.S. Fish & Wildlife Service 1983, Simons and Hodges 1998, Ainley et al. 2001). Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals (Hadley 1961, Telfer 1979, Sincock 1981, Reed et al. 1985, Telfer et al. 1987, Cooper and Day 1998, Podolsky et al. 1998, Ainley et al. 2001). There is no suitable nesting habitat within, or close to the proposed project site for either of these pelagic seabird species.

Mammalian Resources

The findings of the mammalian survey are consistent with the results of at least one previous survey conducted within the general project area in the recent past (David 2004), and with the habitat currently present on the sites.

Although no Hawaiian hoary bats were detected during the course of this survey it is likely that this species forages over the subject property occasionally, as they are relatively widely distributed within the general project area (Klavitter 2000, David 2007).

None of the four established *muridae* were detected during the course of this survey it is probable that, European house mice (*Mus musculus domesticus*), roof rat (*Rattus r. rattus*), Norway rat (*Rattus norvegicus*), and possibly Polynesian rat (*Rattus exulans hawaiiensi*) use resources within the subject property at least occasionally.

Potential Impacts to Protected Species

Hawaiian Hawk

The principal potential impact that the construction and maintenance of the proposed potable water infrastructure poses to the Hawaiian Hawk, is disturbance to nesting hawks during the clearing and grubbing stages of construction.

There is no suitable habitat around the existing water tank on TMK (3) 7-3-04:17 in which hawks are likely to nest, and since no further vegetation is proposed to be removed during the upgrading of his facility it is highly unlikely that those actions will result in any deleterious impacts to this species.

Some clearing will be required on TMK (3) 7-3-04:11 to built the new reservoir and install the necessary piping to support that facility. Currently there are several fairly large trees on this property, none of which showed any signs of having been used as a hawk nesting platform. Due

to the exposed nature of the remaining trees on this site, it is unlikely that hawks are likely to use these as nest trees, since there is so much better edge habitat within the general project area.

Hawaiian Petrel and Newell's Shearwater

The principal potential impact that the development of this site poses to Hawaiian Petrels and Newell's Shearwaters is the increased threat that birds will be downed after becoming disoriented by external lights associated with the proposed action.

Hawaiian Hoary Bat

As previously discussed, it is likely that Hawaiian hoary bats over-fly the general project area on a seasonal basis. The proposed development of potable water infrastructure on these two sites is not likely to have impacts one way or the other on this species.

Conclusions

The modification of the current habitat on the two sites is not expected to result in deleterious impacts to any avian or mammalian species currently listed as threatened, endangered or proposed for listing under either the Federal, or State of Hawai'i endangered species programs (DLNR 1998, Federal Register 2005, USFWS 2005, 2006). Furthermore, the development of the site is not expected to have a significant deleterious impact on native faunal resources found within the North Kona District.

Recommendations

- To reduce the potential for interactions between nocturnally flying Hawaiian Petrels and Newell's Shearwaters with external lights and man-made structures, it is recommended that any external maintenance, or safety lighting that may be required in conjunction with the reservoir or pump site be shielded (Reed et al. 1985, Telfer et al. 1987). This mitigation would serve the dual purpose of minimizing the threat of disorientation and downing of Hawaiian Petrels and Newell's Shearwaters, while at the same time complying with the Hawaii County Code § 14 – 50 *et seq*. which requires the shielding of exterior lights so as to lower the ambient glare caused by unshielded lighting to the astronomical observatories located on Mauna Kea.

- In the unlikely event that a Hawaiian Hawk nest is found on TMK (3) 7-3-04:11 during construction, work in the immediate vicinity of the nest should be halted immediately and the U.S. Fish and Wildlife Service should be contacted, and consulted with before work is resumed in close proximity to the nest tree.

Glossary:

Alien - Introduced to Hawai‘i by humans.
Crepuscular – Twilight hours.
Diurnal – Daytime
Domesticated – Feral species, not considered established in the wild on the Island of Hawai‘i.
Endangered – Listed and protected under the ESA as an endangered species.
Endemic – Native and unique to the Hawaiian Islands.
Indigenous - Native to the Hawaiian Islands, but also found elsewhere naturally.
Muridae – Rodents, including rats, mice and voles, one of the most diverse families of mammals.
Nocturnal – Nighttime, after dark.
Threatened - Listed and protected under the ESA as a threatened species.

ASL – Above mean sea level.
DLNR – Hawaii State Department of Land & Natural resources.
ESA – Endangered species act of 1973, as amended.
TMK – Tax Map Key.
USFWS – U.S. Fish & Wildlife Service

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Appendix C

Archaeological Determination
Rechtman Consulting, LLC

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
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CONSERVATION AND RESOURCE ENFORCEMENT
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

August 11, 2006

Dr. Robert Rechtman
Rechtman Consulting, LLC
HC 1 P.O. Box 4149
Kea'au, HI 96749

LOG NO: 2006.2729
DOC NO: 0608JT36
Archaeology

Dear Dr. Rechtman:

SUBJECT: Chapter 6E-42 Historic Preservation Review–
No Historic Properties Affected Request
Kalaoa 5th Ahupua'a, North Kona District, Island of Hawai'i
TMK: (3) 7-3-004:011

Thank you for your letter on behalf of Seascape Development LLC requesting that we evaluate the subject parcel location for a water reservoir in Kalaoa 5th for any effect on historic properties.

We believe that **no historic properties will be affected** by this undertaking because:

- ☒ a) intensive cultivation has altered the land
- ☐ b) residential development/urbanization has altered the land
- ☐ c) previous grubbing/grading has altered the land
- ☐ d) an acceptable archaeological assessment or inventory survey found no historic properties
- ☐ e) this project has gone through the historic review process, and mitigation has been completed
- ☒ f) other: *As noted in your letter RC-0433 report, no historic properties are present at this project location.*

In the event that historic resources, including human skeletal remains, are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Division, Hawai'i Section, needs to be contacted immediately at (808) 327-3691.

Aloha,

for Melanie Chinen, Administrator
State Historic Preservation Division

JT

RECHTMAN CONSULTING, LLC
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phone: (808) 966-7636 fax: (808) 443-0065
e-mail: bob@rechtmanconsulting.com
ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL STUDIES

August 7, 2006 RC-0433

Julie Taomia, Ph.D.
Hawai'i Island Archaeologist
DLNR-SHPD
74-383 Kealakehe Parkway
Kailua-Kona, HI 96740
Fax: 327-3693 *via fax* (original mailed)

Dear Julie:

On behalf of our client, Seascape Development LLC, Rechtman Consulting, LLC has prepared this request for determination of "no historic properties affected" associated with the placement of a water reservoir on a roughly 5.93 acre parcel known as TMK:3-7-3-004:011, in Kalaoa 5th Ahupua'a, North Kona District, Island of Hawai'i (Figures 1 and 2). The project is part of a water transmission system for the low-cost housing project to be constructed within the Lōkahi Ka'ū development area. The current study parcel is situated on the *mauka* side of the old Māmalahoa Highway at elevations ranging from 1,690 to 1,920 feet above sea level. The entire study parcel has been previously graded (Figures 3 and 4). The parcel is a portion of the 45 acre Grant 1609 issued in 1855 to Kama (see Figure 2).

The Cordy et al. (1991) study of nearby Kaloko Ahupua'a provides a useful archaeological and culture-historical model that is relevant for the current study area. The project parcel is elevationally at the upper limits of what Cordy et al. (1991) defined as the Upland Zone. Their study indicated that "all of the land within this zone above the 1,100 foot elevation had been greatly altered by housing, modern agriculture and ranching activities" (Cordy et al. 1991:409). The primary area of upland *Māhele* awards was between the 800 and 1,200-foot elevations, above this the lands were farmed in a traditional manner and then later converted to grants used for cash crop farming and cattle ranching. Very few sites were recorded during their 1971 field survey of the upland zone in Kaloko; although they did encounter a Precontact temporary habitation lava tube, and several walled areas. They attributed most of the walls to the post 1850 grant period. Their conclusions relative to large-scale ground disturbance and the limited number of extant archaeological sites were further supported by fieldwork and interview data collected by Barrera (1985).

Haun and Henry (2003), as part of an inventory survey at TMK: 3-7-3-23:88 within Kalaoa 3rd Ahupua'a, prepared a comprehensive summary of all archaeological studies conducted within the Kaloa (1-5) *ahupua'a* and the adjacent *ahupua'a* of 'O'oma. Haun and Henry relate that more than forty archaeological studies have been conducted within these *ahupua'a*. The studies have covered nearly 7,000 acres and identified over 484 sites with 4,923 features (2003:12). Summarizing these studies, Haun and Henry write:

> Overall, the studies have identified 53 permanent habitation features, 379 temporary habitations, 3,739 agricultural features, 25 burials, 17 ritual features, 34 trail segments, 65 *ahu*, and 18 petroglyphs. Two hundred and twenty-three habitation features were not categorized by residential permanence. Historic features were not segregated by function. The majority of the historic features are ranch walls. (2003:12)

Haun and Henry also report that, "burial and ritual sites are present near the coast with a few reported for surveys between 500 ft and 1,800 ft elevation" (2003:12). Radiocarbon data from the surveys "indicate initial use of the area in the 1400s followed by a gradual increase during the 15th century. The most intensive use dates to the 1600s to early historic period" (2003:12). According to Cordy (1985), the

Precontact population of Kalaoa (1-5) and 'O'oma Ahupua'a was never more than approximately 100 people who, as reported by Ellis (1963), lived in small fishing villages along the coast and had upland agricultural fields with scattered residences.

Three previous archaeological studies have been conducted at proximate elevations in Kalaoa 1st and 2nd *ahupua'a*, all, to the north of the current project area. One of these studies was conducted by Barrera (1992) at a roughly 10-acre property (TMKs:3-7-3-002:007, 008 por., and 045) for the LDS Church. As a result of that study Barrera (1992) identified seven sites including a large agricultural complex containing fifty features (Site 17994), two sealed lava tubes that were not investigated (Sites 17995 and 17998), a Habitation terrace (Site 17996), a lava tube containing a burial (Site 17997), a habitation enclosure (Site 17999), and a Historic house site (Site 18000). The agricultural complex recorded by Barrera (1992) covered all previously undisturbed sections of the project area. Recorded features included various mounds, *kuaiwi* walls, and retaining walls. Clark et al. (2004) conducted a study on a roughly 23-acre parcel (TMK:3-7-3-002:009) immediately north and east of the Barrera (1992) study area, and recorded two sites (SIHP Sites 24213 and 24214). They noted, however, that at the time of the study nearly the entire parcel had been bulldozed and newly constructed rock walls had been erected along the boundaries. Only a 50 x 20 meter area surrounding a series of small lava tubes (one containing burials) located in the northwestern portion of the project area had escaped mechanical clearing on the property. The third study was conducted by Clark and Rechtman (2006) on a roughly 17-acre parcel (TMK:3-7-3-002:022) located in Kalaoa 1st Ahupua'a. They recorded a single archaeological site (SIHP Site 25033) that consisted of the core-filled walls enclosing the study parcel. These walls appear to have been erected during a single construction episode in about 1895, when the property was purchased as Grant No. 3771. The remainder of the parcel had been completely grubbed and graded.

On April 10, 2006, Matthew R. Clark, B.A. and Robert B. Rechtman, Ph.D. conducted a field inspection of the study parcel. The property boundaries were clearly evident and the vegetation cover was minimal (Figure 5). As mentioned above the entire study parcel has been graded, and there is an access road extending along the southern side of the parcel (Figure 6). There were no archaeological resources observed on the surface of the parcel and the likelihood of subsurface resources is extremely remote given the extensive grading and exposed bedrock throughout the parcel. Based on these negative findings, on behalf of our client, we are requesting that DLNR-SHPD issue a written determination of "no historic properties affected" in accordance with HAR 13§13-284-5(b)1.

Should you require further information, or wish to visit the parcel, please contact me directly.

Respectfully,

Bob Rechtman, Ph.D.
Principal Archaeologist

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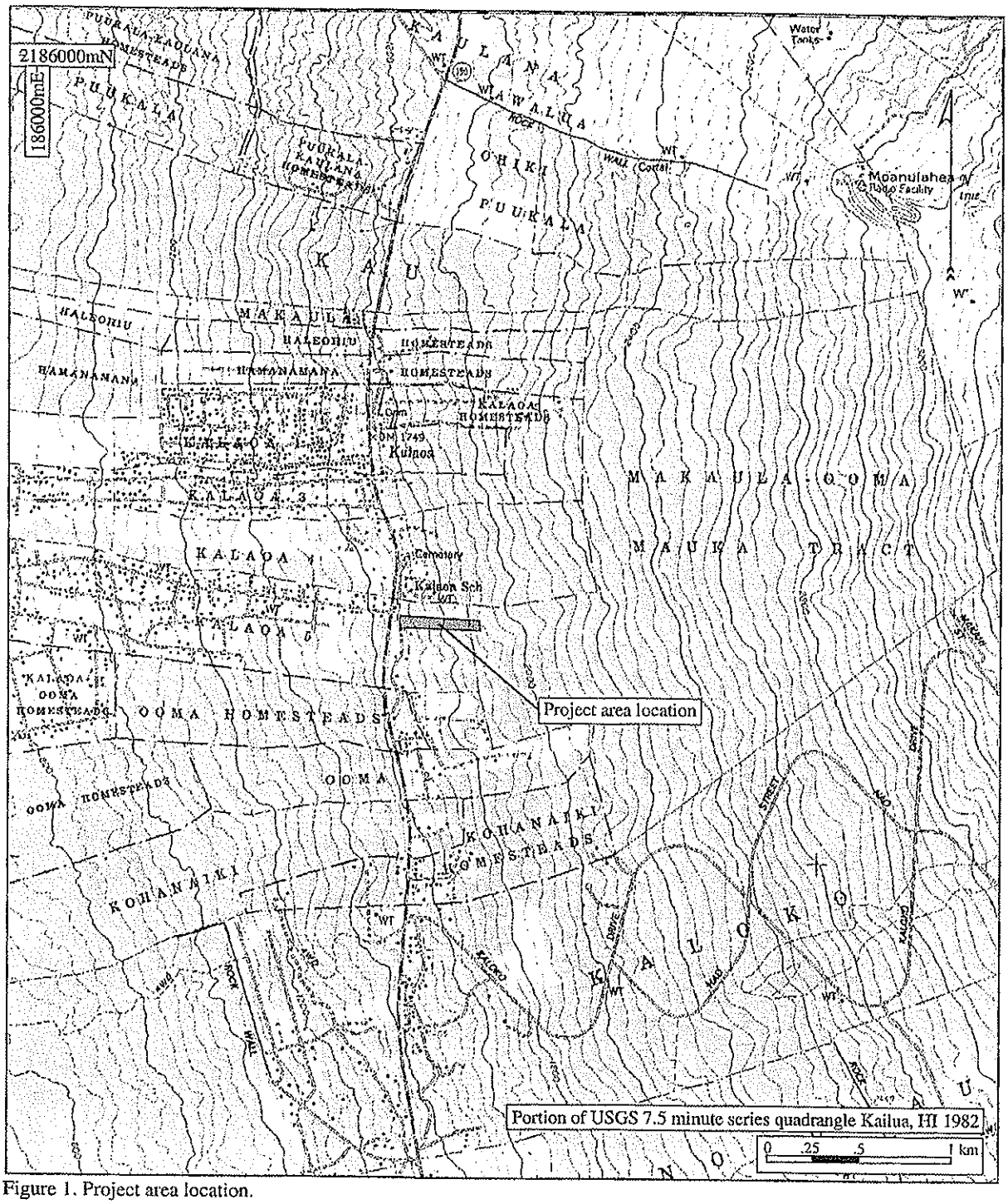

Figure 1. Project area location.

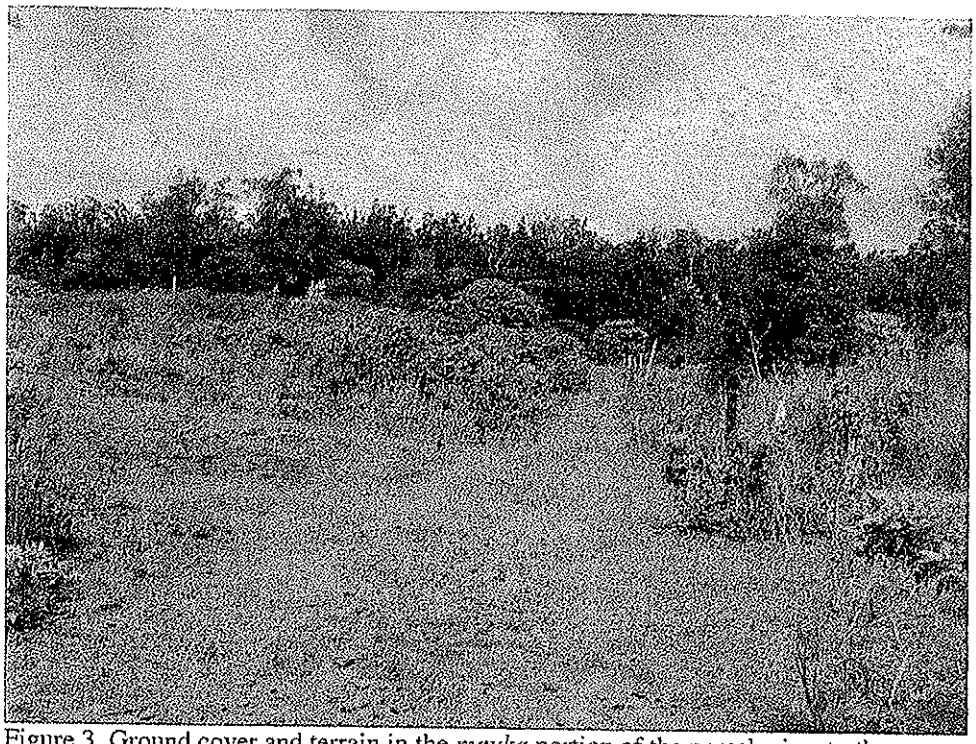

Figure 3. Ground cover and terrain in the *mauka* portion of the parcel, view to the east.

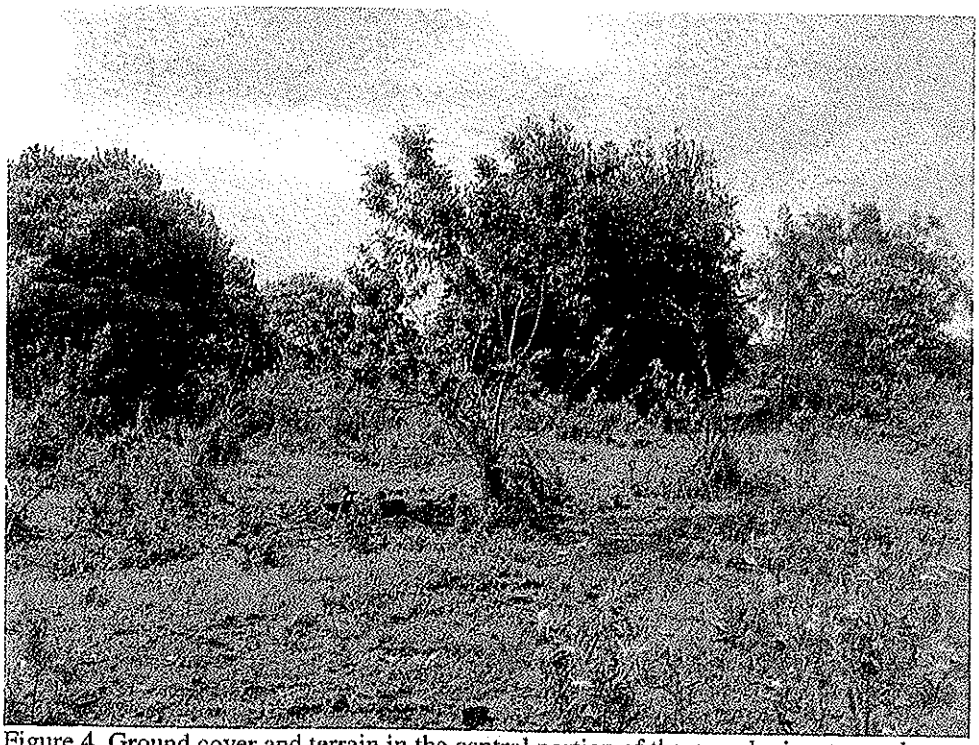

Figure 4. Ground cover and terrain in the central portion of the parcel, view to northeast.